BARBARA GILI FIVELA, MASSIMILIANO M. IRACI

Variation in intonation across Italy:
The case of Palermo Italian

The present work addresses the main characteristics of Palermo Italian intonation with the aim to extend previous investigations on the same variety of Italian and, even more importantly, with the final goal of improving the knowledge on variation in intonation throughout Italy. The ideas behind the present study are that, first, a better knowledge on intonation may be reached by focusing on a wide set of communicative contexts and by considering different speech styles, and, second, cross-variety variation may be better pointed out by adopting the very same methods used to investigate other varieties. Materials were then collected and analyzed by adopting the same criteria followed in a recent, wide study on Italian varieties. Results show that the adopted methodology allowed to obtain a better knowledge on Palermo Italian, in relation to both the analysis of sentence modalities which had been investigated before and new modalities and pragmatic contexts collected for the present study; moreover, cross-variety comparison was enriched by adding Palermo Italian, and confirming the lack of homogeneity in intonation patterns used within isoglosses traditionally proposed in the literature on vernaculars in Italy.

Key words: Intonation, Palermo Italian, variation, Autosegmental-Metrical framework.

1. *Introduction*

Linguistic variation throughout Italy is well-known even when prosody, and in particular intonation, is taken into account. Intonation patterns and their implementation may indeed vary considerably depending on the variety of Italian considered, as shown by means of works adopting both a phonetic and a phonological perspective (among the former, see Magno-Caldognetto *et al.*, 1978; Endo, Bertinetto, 1997; Romano, 2003; among the latter, e.g., Savino, 2012; Crocco, 2013; for an overview, see Gili Fivela *et al.*, 2015; Gili Fivela, 2008).

Phonological analyses are particularly interesting, given the effort in identifying functional categories out of the phonetic variability and the fact that analyses are often accompanied by descriptions of the main phonetic characteristics (e.g., alignment of tonal events with segmental landmarks), which may also be of interest. A phonological approach, such as that followed within the Autosegmental-Metrical framework (Bruce, 1977; Pierrehumbert, 1980; for an overview see Ladd, 1996), is characterized by the effort in finding categories out of the phonetic continuous variability, keeping in mind linguistically-induced variation such as that related to sociolinguistic factors. Very schematically, in Autosegmental-Metrical analyses high and low tones represent the target levels in a phonological system and are selected

within the specific units called pitch accents and edge tones. Among the former, monotonal or bitonal accent, which associate to stressed syllables and add sentence level prominence (e.g., H*, L+H*, where the '*' indicate association to the tone bearing unit; tritonal accent are disfavored); among the latter, phrase accents and boundary tones (e.g., H-, H%, LH%), which are associated to the edge of prosodic constituents and represent relevant cues to prosodic boundaries of different levels. The phonological analyses are usually accompanied by a description of main expected phonetic implementation characteristics and are carried out by considering the main sources of linguistic variation.

In this respect, so far few works have been proposing wide and deep analyses of the Italian language, well-known to be characterized by a high degree of variability. Some of them focused on specific modalities or structures. For instance, working on Map-Task dialogues (corpus CLIPS[1]), Savino (2012) focused on yes/no questions and Crocco (2013) also described right dislocated constituents as produced in fifteen varieties of Italian (those spoken in Turin, Bergamo/Brescia, Milan, Venice, Genoa, Parma, Florence, Perugia, Rome, Cagliari, Naples, Bari, Lecce, Catanzaro, and Palermo). Only recently a larger number of sentence types and communicative contexts have been taken into account, that is statements, exclamations, yes/no questions, wh questions, imperatives and vocatives, by Gili Fivela *et al.* (2015) who analyzed speech material collected by means of both a Discourse Completion Task (DCT, Blum-Kulka *et al.*, 1989) and a read speech task. In particular, the authors collected and analyzed speech material representative of thirteen varieties of Italian, i.e. Turin, Milan, Florence, Siena, Pisa, Lucca, Rome, Pescara, Naples, Salerno, Bari, Cosenza and Lecce. The added value of such works, in comparison to the previous literature on the phonology and phonetics of Italian intonation (such as Grice at al., 2005) is the parallel analysis of speech data from a large number of varieties. Similar investigations were carried out, in fact, on the basis of the same conventions of transcription, as opposed to an *a posteriori* comparison of results that, moreover, was often obtained by different investigators who, even when referring to the same framework, may have not necessarily agreed on the analysis and transcription of specific phenomena. Moreover, such parallel analyses are characterized by the reference to the same speech style(s), which is not warrantied in works on different varieties/languages.

As far as the variation in the phonology of intonation is concerned, the widest comparative study performed so far was presented in June 2011 in Tarragona (Spain), during the Romance Tones and Break Indices (ToBI) workshop, and discussed in Gili Fivela *et al.* (2015). The authors pointed out that the variation observed in intonation patterns does not allow to identify isoglosses that resemble those traditionally proposed on the basis of vernaculars ("*dialetti*") synchronic structural differences or geographical and historical issues. This observation is in line with what independently pointed out by Savino (2012) for intonation in yes/

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[1] Corpora e Lessici di Italiano Parlato e Scritto – Corpora and Lexicons of Spoken and Written Italian – www.clips.unina.it.

no questions, that is "the contour type is not geographically related". In particular, Gili Fivela *et al.* (2015) showed that variation may be either marked or limited, depending both on the specific function and on the pattern considered. In fact, in some cases it is possible to find one intonation pattern that can be used by speakers of different varieties of Italian (such as in broad-focus statements, lists, wh-questions, counterexpectational wh-questions, disjunctive questions, and vocatives). However, in other cases, strong variation is found in relation to both the intonation inventory selected by speakers of different varieties and the specific functions associated with nuclear configurations. As for the former case, a good example is represented by the use of L+H* vs. H*+L to express narrow-correction focus in Florence and Pisa Italian, respectively; an example of the latter case, is the pattern L+H* L% to signal yes/no questions in Cosenza and contrastive correction focus in Florence Italian. Anyhow, it is clear that, as far as intonation is concerned, it is not possible to identify across Italy the same isoglosses found in analysing vernaculars ("*dialetti*") as for other aspects of the grammar. That is, a representation such as that by Pellegrini (1977) is not useful to refer to variation in intonation.

As far as Palermo Italian is concerned, previous works focused on yes/no questions (early and late focus and conveying incredulity), statements (broad and narrow focus in contradictory sentences) and lists in read speech corpora (Grice, 1995, who compared British style analyses and Autosegmental ones). Specific investigations on right dislocation in both polar questions and declaratives (Crocco, 2013) and polar questions in general (Savino, 2012) were carried out on semi-spontaneous speech. However, no work has considered so far a wider set of sentence types and pragmatic contexts in different speech styles.

Goal of the investigation described here is achieving a better and wider knowledge on Palermo Italian, being also able to compare its features with those found in other varieties of the language. Our hypotheses are that 1) a better knowledge on intonation may be reached by focusing on a wide set of communicative contexts and by considering various speech styles; 2) cross-variety variation may be better pointed out by adopting the very same methods used to investigate other varieties. Thus, we decided to adopt the same methods and transcription conventions that have been used to perform the widest investigation available so far on intonation in Italian varieties (Gili Fivela *et al.*, 2015), always comparing analyses with relevant works on Palermo Italian.

2. *Previous works on Palermo Italian*

As already mentioned, there are basically three previous works on Palermo Italian proposing phonological inventories for such variety: Grice's (1995) work, whose data were also reported in Grice *et al.* (2005), Savino's (2012) and Crocco's (2013) analyses.

Grice (1995) and Grice *at al.* (2005) proposed the existence of pitch accents such as H+L* and H*+L in statements, to express broad and narrow-correcting fo-

cus respectively; L*+H in yes/no questions for both early and late focus, and L+H* to convey continuation in lists. As for the edge tones, L-L% are reported in the contexts mentioned above, that is after all the pitch accents listed so far, while L-H% is reported to be possibly found in yes/no questions conveying incredulity.

Later, Savino (2012) confirmed that the L*+H L-L% pattern is the most frequent one which is used for expressing yes/no questions in Palermo Italian, though "an extra terminal rise after the accentual rise has been occasionally observed [...] when yes-no question utterances are read aloud" (2012: 26). In the data she analysed, the low boundary tones are found in 83.6% of cases, while a final rise is observed in 8.5% of utterances (2012: 33). The analysis was basically left unvaried by Crocco (2013), who analysed the prosody of right dislocated constituents.

Table 1 - *Patterns described in previous works on Palermo Italian intonation (see discussion in text)*

	utterance type	*pattern*	
Statements	broad focus	H+L*	L-L%
	narrow-corrective focus	H*+L	L-L%
	lists	L+H*	L-L%
Yes/no questions	early and late focus	L*+H	L-L%
	incredulous (or read aloud)	L*+H	L-H%

3. *Palermo Italian: The extended model*

3.1 Methods

Along the lines of Gili Fivela *et al.* (2015), data were collected by audio recording 5 Palermo Italian speakers (3F, 2M, aged 20-30 years). All speakers had been continuously exposed to Palermo Italian, used it for everyday conversation, and had a similar educational level, that is high-school to university degree. Speakers were asked to perform a Discourse Completion Task (Blum-Kulka *et al.*, 1989), including 57 situation/contexts presented in pseudo-randomized order. The situation/context was used to have the speaker immersed in the intended pragmatic circumstance and induced to refer to specific lexical words. The speaker was indeed asked to spontaneously react to the given context/situation and, later, to read aloud a sample sentence, in which both lexical entries and sentence structure were controlled.

Usually, situations/contexts were included to elicit at least two target sentences for each sentence type, mainly to facilitate the collection of patterns realized on target words showing different stress positions. For instance, for broad focus declaratives, the contexts eliciting both *Mangia I mandarini* 's/he eats tangerins' and *Beve una bibita* 's/he drinks a soft drink' are included in the corpus (having pictures/drawings showing someone eating a tangerine/drinking a soft drink and asking the subjects to state what s/he is doing); lists, to offer another example, are elicited by means of two contexts, one requiring the subject to list the days of the week and the other one asking him/her to list the favourite fruits. However, in few cases only

one situation is part of the corpus. This is the case, for instance, of exclamations (see Figure 1) and counter-expectation polar questions (where the context offered to elicit the sentence *Loredana un ingegnere?!* 'Loredana an engineer?!' asks the subject to think to be informed that a friend, who has never been good at math, is now an engineer; the subject is supposed not to believe in the information and to ask for confirmation while explicitly communicating s/he disbelieves it).

In particular, each time a situation/context and an example of response were proposed (see Figure 1), speakers were asked to:

1) read carefully and understand a written text describing a context/situation, presented over the PC screen;
2) produce a spontaneous utterance which would fit with the situational context presented;
3) read as spontaneously as possible the target sentence proposed by the experimenters as suitable for the same context.

The whole set of target utterances was presented twice, that is we collected 4 target utterances for each situation/context. Interviews were carried out by the second author, which is speaker of Palermo Italian.

Figure 1 - *Example of slide used to elicit the speech material (adapted from Gili Fivela et al. 2015)*
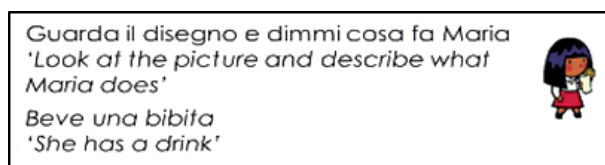
The analysis was framed within the Autosegmental-Metrical theory (Bruce, 1977; Pierrehumbert, 1980; for an overview see Ladd, 1996). Auditory analysis and inspection of fundamental frequency tracks were performed by the authors in order to highlight the main phonological and phonetic features of Palermo Italian intonation. Specific attention was devoted to spontaneous renditions, though alignment characteristics were nevertheless confirmed by means of read speech productions (i.e., subtask 3 above). Importantly, if not specified, the analyses are considered not to depend on speech style.

In line with annotation convention established by Gili Fivela *et al.* (2015: 149), "combinations of equal tones are collapsed and represented by one symbol only (e.g., L-L% becomes L%) and sequences of different edge tones are reported with no intermediate hyphen".

3.2 Results

3.2.1 Statements

Broad focus statements are realized by means of a H+L* L% pattern in line with what reported in the literature on Palermo Italian (see section 1) and in line with what observed in other varieties of Italian. As already observed by Gili Fivela *et al.* (2015) a high

variability in H+ scaling is found, though in the case of Palermo Italian data it seems to be possible to relate it to inter-subject or style variability. Indeed, most of the time (72.5%, tot. n. 40) no clearly high leading tone target is identified, and 73% of the remaining 27.5% instances (i.e., those showing a clearly high target for the leading tone) are produced by one single speaker (see Figure 2, speaker 1 vs. speaker 2).

As for lists, they are usually characterized by either H+L* or L+H* on all the items but the penultimate, which usually bears a L+H*, and the last one, which rather carries a H+L*. In some cases, a delayed peak for the L+H* accent seems to be realized. The final edge tone is usually low, though a high one may also be found.

Figure 2 - *Broad focus statements* Maria mangia il mandarino *'Maria has a mandarin' and* Maria beve una limonata *'Maria is drinking a lemonade', speaker 1 (left) and 2 (right)*
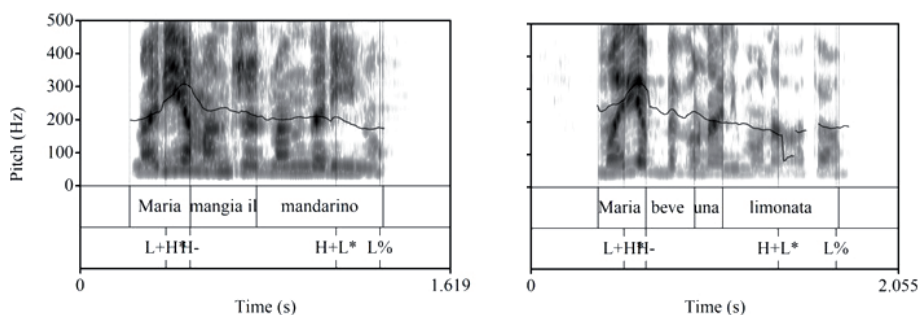
Narrow contrastive-corrective focus in Palermo Italian statements is realized with a H*+L pitch accent (67.5%,) in line with what reported in the literature on Palermo Italian (Grice, 1995, Grice *et al.*, 2005) – see Figure 3, left panel. In about 1/3 of cases, the realization implies a level rather than a rise to the H* target within the H*+L. Thus, given the two main pitch accents used to express corrective focus in Italian, Palermo Italian shows the same phonological categories found in Rome, Pisa, Pescara, Cosenza, Bari and Lecce (and different from the L+H* found in Milan, Turin, Florence, Siena, Lucca, Naples and Salerno).

Figure 3 - *Narrow contrastive-correction focus* Guarda che vivono a Milano *'They live in Milan': example of H*+L and H+L* pitch accent*
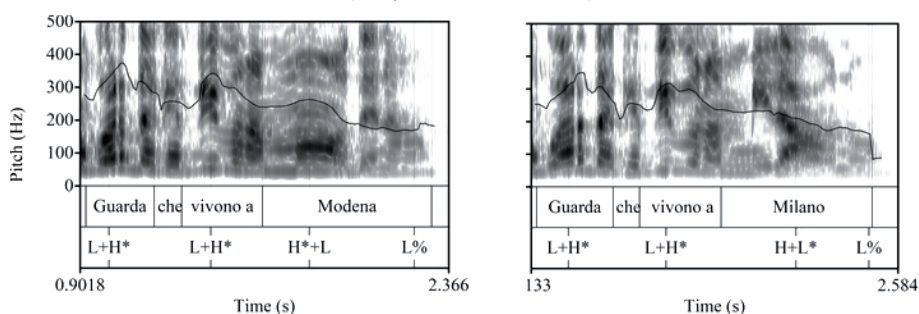
However, in line with what observed for other varieties of Italian, more than one pitch accent is found in the expression of focus: in some cases H+L* is used (20% of cases – Figure 3, right panel) and in some other cases a rising L+H* accent is found (around 12% of cases, but in just two speakers – speaker 1 and 4 – and always during the second repetition, as if a different nuance could relate to the reduced novelty of the context or to variation in either illocutionary force or politeness – see Figure 4).

Figure 4 - *Narrow contrastive-correction focus* Guarda che vivono a Modena *'They live in Modena': example of L+H* pitch accent*
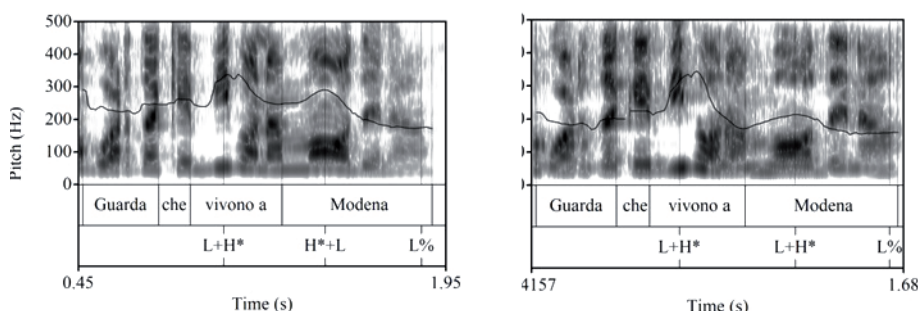
However, a typical feature of Palermo Italian intonation and 'local accent' seems to be related to the presence of a prenuclear L+H* accent that shows a particularly high (and apparently slightly delayed) peak: the scaling relation between the preceding prenuclear and the nuclear accent seems to characterize Palermo Italian statement intonation (see Figure 5). The height and prominence of such accent seems also to be enhanced by the lack of pitch accent on other potential preceding tone bearing units in the phrase (in fact, a deaccentuation or prominence downgrading of items that would usually be pitch accented in other varieties seems to take place in such contexts) – see Figure 5, right panel.

Figure 5 - *Broad focus statements* Sta bevendo una limonata *'She is drinking a lemonade'; Narrow contrastive-correction focus* Guarda che vivono a Milano *'They live in Milan'*
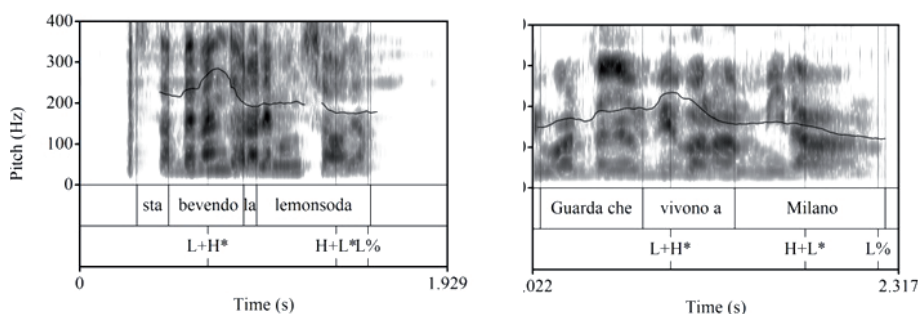
3.2.2 Exclamatives

In Palermo Italian, in line with other varieties (Gili Fivela *et al.*, 2015) exclamatives are expressed by means of a L*+>H pitch accent (80% of cases – see Figure 6), usually followed by a L% boundary tone[2].

Figure 6 - *Exclamatives* Ma che buon odore di mandorle! *'What a good smell of almonds!':* *examples of L*+>H*
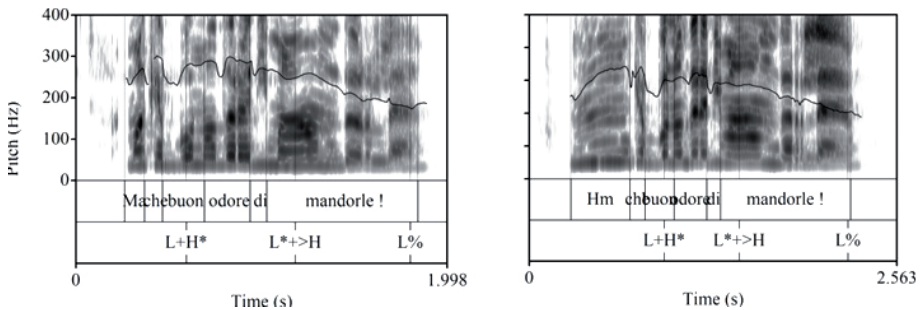
As already observed in Turin, Florence and Siena, this option alternates with a L+H* L% pattern (around 20% of cases – see Figure 7)[3]. Palermo Italian exclamatives show a globally wider pitch range or a higher register than usual, as already observed for exclamatives in other varieties of Italian. As suggested in Gili Fivela *et al.* (2015) it is still a matter of debate if an initial %H boundary tone could be appropriate to describe these contours.

3.2.3 Yes/no questions

3.2.3.1 Information seeking yes/no questions

In line with previous investigations, the pattern used to express information seeking yes/no questions in Palermo Italian is found to be L*+H L% most of times (82.5% of cases, but as an average of 70% of patterns found on paroxiton and 95% observed on proparoxiton target words). Variability is detected in the alignment of the pitch accent peak (which, however, is usually aligned within the syllable, though in the second half of the coda consonant) and in the alignment of the L% target (which may range from the post-tonic syllable to the end of the phrase) – see alignment difference in the two plots in Figure 7.

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[2] One H% was found in this corpus.
[3] Actually, productions by speaker 5 would be compatible with a H*+L analysis too, given the realization within an extremely lengthened syllable.

Figure 7 - *Yes/no information seeking questions* Avete delle mandorle? *'Do you have almonds?'*
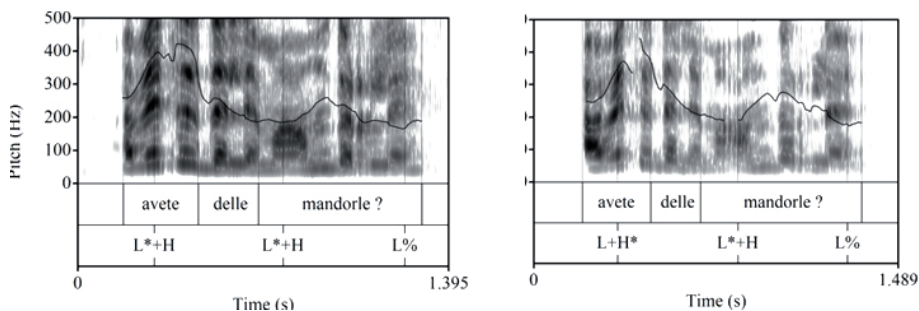
Another option is apparently represented by a L*+H H% pattern, i.e., involving a final high boundary tone target – see Figure 8, left panel. In the corpus analysed here, this pattern is observed in a smaller percentage of cases in comparison to the main pattern (15% of the total amount of target words), and mainly in the case the nuclear pattern is realized on paroxiton (25%) rather than proparoxiton words (5%). This fact, together with the observation of the 100% of total truncation cases in yes/no questions involving an oxiton target word (*Avete dei Babà?* 'Do you have Babà?', in line with finding in Grice, 1995) – see Figure 8 right panel, suggests that the presence of a final high boundary tone may be not only related to a more controlled speech style (as suggested in the literature, e.g., for Bari Italian by Savino, Refice, 1997; see discussion in Savino, 2012), but also to a general tendency towards truncation of the final low tone specification.

Figure 8 - *Yes/no information seeking questions* Avete dei mandarini?
'Do you have mandrins?' (left panel) and Avete dei Babà? *'Do you have Babà?' (right panel)*
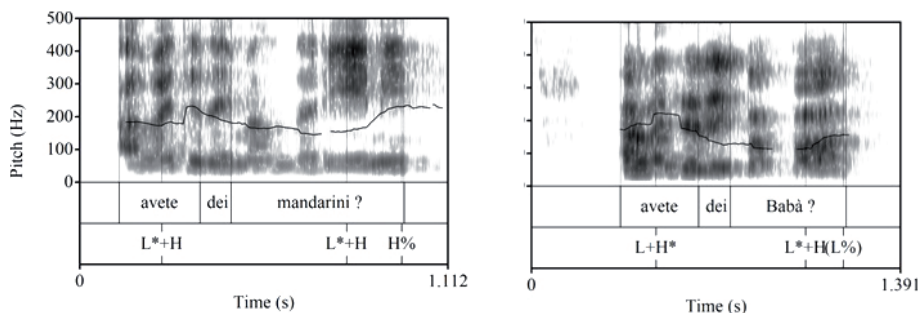
3.2.3.2 Echo, counterexpectational and confirmation seeking yes/no questions

The most common pattern used for confirmation seeking yes/no question is, again, L*+H L% (75% of cases – see Figure 9, left panel, plus one instance that is realized with a final high boundary tone), though quite a number of instances of H+L* L% are found

(15%) in confirmation seeking question that are actually realized by the following tag question (e.g., *vero?* "isn't it?")[4].

Echoes are realized by means of a L*+H L% pattern too (80% – see Figure 9, right panel), with the variant involving a high boundary tone realized by one speaker only (20%).

Figure 9 - *Yes/no confirmation seeking questions* Vuoi le mandorle? *'Do you want almonds?'* *and echo question* Le nove? *'nine o'clock?'*
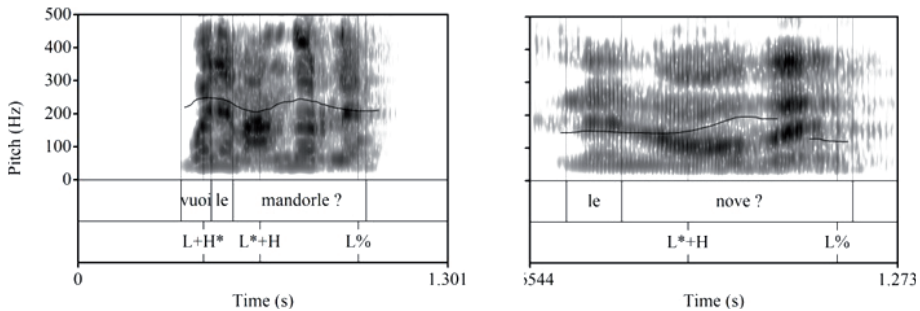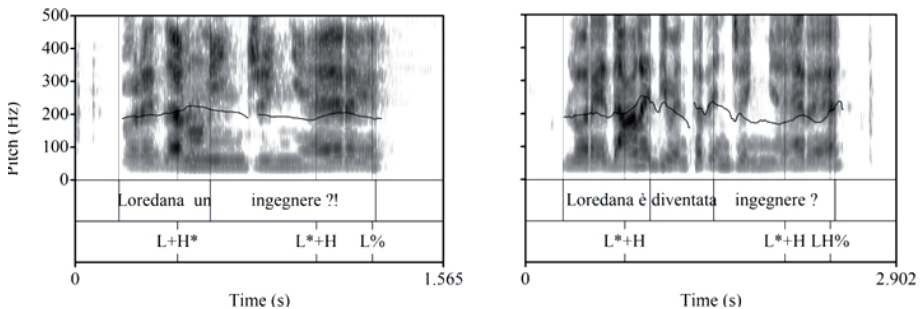

Figure 10 - *Counterexpectational yes/no questions* Loredana un ingegnere!? *'Loredana an engineer!?'*

As in other varieties, Palermo Italian counterexpectational yes/no questions are expressed by means of the same phonological pattern found in echo yes/no questions, although the phonetic implementation may imply differences in syllable lengthening, tonal alignment, and scaling. This means that in Palermo Italian, such questions are realized by means of a L*+H L% pattern (71%) in which, though the pitch accent peak is anticipated within the nuclear syllable to the extent to resemble the L*+>H used in exclamatives, though usually it is more compressed in range (Figure 10, left panel; in 5% of cases no peak anticipation is realized and the production resemble a regular check rather than a counterexpectational question). In the case of one speaker, the final boundary tone includes a high tone (24% of total instances) – see Figure 10, right panel. The latter pattern was already observed by Grice (1995).

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[4] In one case a H*+L is also realized.

Thus, in Palermo Italian as in many other varieties, one pattern is common to many (sub)functions (e.g. information seeking, confirmation seeking and echo) and more than one pattern may play a specific function, possibly for stylistic reasons. However, in the case of Palermo Italian, the pattern involving a final high boundary tone is clearly speaker-related and, at least in some cases, may rather signal a tendency toward the final low truncation.

3.2.4 Wh-questions

3.2.4.1 Information seeking wh-questions

The most frequent pattern found in the corpus to express information seeking wh-question is H+L* L% (65% – Figure 11, left panel), while that involving a final high boundary tone is less attested (35% – Figure 11, right panel[5]). Palermo Italian, in this respect, shows features that are shared with the other varieties of Italian.

Figure 11 - *Wh information seeking questions* Cosa le regalerebbero? *'What would they gift her?'*
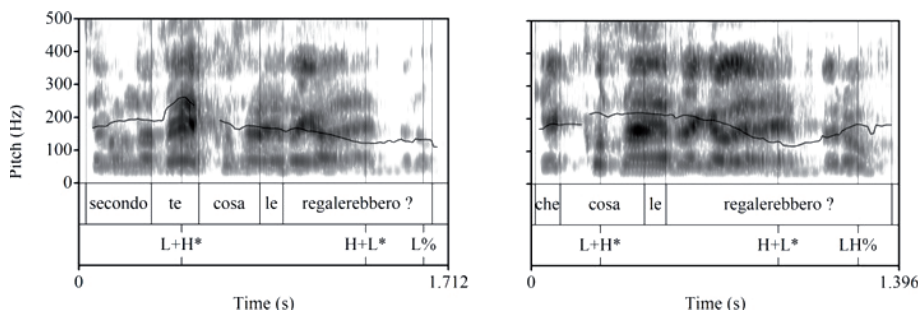

3.2.4.2 Echo, disjunctive and counterexpectational wh questions

In line with other varieties of Italian, echo questions are realized by means of the same pattern found in information seeking yes/no questions, that is L*+H L% (100% of cases), and disjunctive questions are realized by means of a L+H* pitch accent on the first item (eventually followed by a low phrase accent) and a H+L* on the final item followed by either a low or a high boundary tone (in this corpus, L% is attested in 55% and H% in 45% of cases).

As already observed for many other varieties of Italian, counterexpectational wh questions are expressed by means of a rising pitch accent which is characterised by a wide pitch excursion and is therefore labelled as L+¡H.

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[5] The postnuclear syllable does not need to be obligatorily implemented at low tone value, but so far the pattern has been analysed as LH% for homogeneity with the transcription chosen for other varieties and for the observed variability in L- alignment.

Figure 12 - *Counterexpectational wh questions* Cosa ti volevano servire?
*'What did they want to serve you?'*
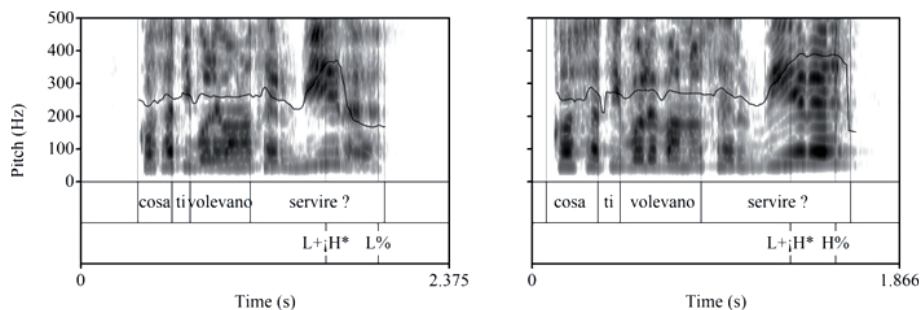
In Palermo Italian, such pitch accent is followed more often by a low boundary tone (L+¡H L% in 61% of cases) than by a high boundary tone (L+¡H H% in 39% of cases). Moreover, the choice of a high boundary tone appears to be quite subject specific. In fact, only two speakers use H% in our corpus and just one of them alternates it with the L% boundary tone – see Figure 12. Thus, the main option found in the other varieties of Italian, that involving the high boundary tone, is the least frequent in Palermo Italian.

3.2.5 Imperatives: commands and requests

Commands are usually realized by a H+L* L% nuclear pattern preceded by a rising L+H* accent, in line with what observed in other varieties (100%, see Figure 13, left panel)[6].

In line with what observed in other varieties on the same materials, imperative requests are usually realized by means of a contrastive corrective pattern, that is a H*+L L% in Palermo Italian (100%, see Figure 13, right panel).

Figure 13 - *Imperative comand* Ritorna! *'Come back here',* left panel, and imperative request
Avanti, vieni, dai *'Come on, join us, come on',* right panel

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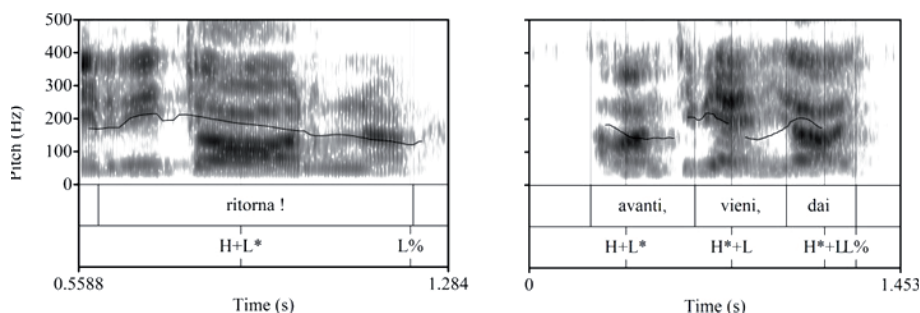
[6] Actually the two spontaneous productions by one of the female speaker are both realized with a L+H* pitch accent on the verb, but they sound as requests rather than commands and they were then considered not representative of the intended function.

3.2.6 Vocatives[7]

3.2.6.1 Initial call

The pattern attested in vocative initial calls is mainly L+H* H!H% (75%), that is the same found in the other varieties investigated so far (i.e., Milan, Turin, Pisa, Lucca, Rome, Pescara, Naples, Salerno, Cosenza, Lecce, Florence, Siena). Moreover, one of the speakers also realize a rising accent followed by a high (level) edge tone (L+H* H%; 15% of total cases) or by a low edge tone (5% cases; finally, one extra pattern fond in the corpus sounds interrogative).

3.2.6.2 Insistent call

The insistent call may be realized by repeating the same phonological pattern used for the initial call, that is L+H* H!H%, though usually produced at a higher fundamental frequency (75% of cases) – see Figure 14, left and central panel; the right panel shows that the postnuclear syllable may also be already downstepped. Another option, found in other varieties too, corresponds to the use of a L+H* L% pattern (20% of instances, showing a slightly earlier pitch accent peak, around the middle of the vowel) – see Figure 15. One speaker also realizes a rising accent followed by a high (level) edge tone (L+H* H%; 5% of total cases).

Figure 14 - *Vocative initial and insistent call* Domenico! *'Domenico': main pattern*
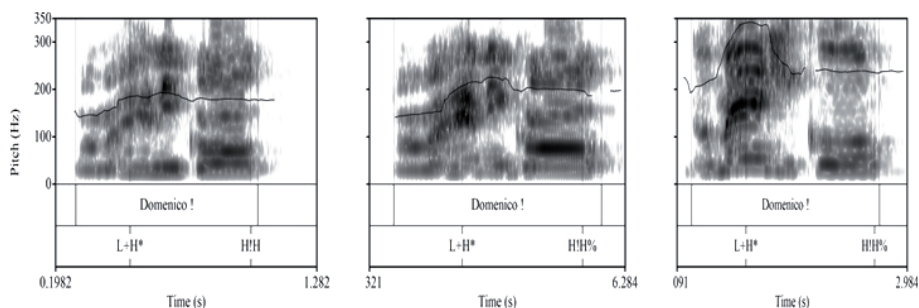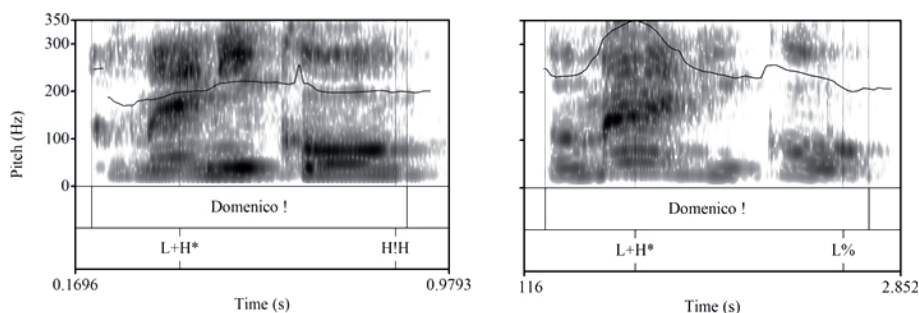

Figure 15 - *Vocative initial and insistent call* Domenico! *'Domenico': alternative pattern*

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[7] Due to technical reasons, the productions by one of the male speakers were discarded. Another male speaker (matching all the selection criteria) was recorded to replace the missing speech material.

4. *Variation in Italian intonation and Palermo Italian in its "isogloss"*

Results of the analysis reported in section 2.2 showed that the phonological inventory of Palermo Italian is composed by pitch accents and edge tones that are also found in other varieties, though the patterns in which such basic units combine and their association to specific language functions may change. In this section, the features found in Palermo Italian will be compared with those reported for other varieties of Italian (see Appendix 1), with specific attention to those found in the isogloss corresponding to the extreme-South (Pellegrini, 1977), which in Gili Fivela *et al.* (2015) was represented by Lecce and Cosenza.

As for statements, in broad focus contexts Palermo Italian shows the pattern corresponding to H+L* L%, which is found in many other varieties of Italian. However, the well-known high variability in H+ scaling in our corpus on Palermo Italian seems to be due to inter-subject more than speech style variability. The falling H+L* accent is also found in lists, where it is mandatory in final position. In other positions, it alternates with L+H*, which is though mandatory in penultimate position. As for narrow contrastive-corrective focus, a H*+L accent is found in Palermo, though, in line with what observed for other varieties too, in some cases H+L* may also be used to express the same function. However, a typical feature of Palermo Italian intonation seems to be related to the scaling relation between the prenuclear and the nuclear accent, with the former sounding very prominent and reaching a quite high fundamental frequency value in comparison to the latter. Exclamatives are realized by means of patterns found in other varieties of the language too, that is L*+>H L% or, in fewer cases, a L+H* L% pattern. Thus, as far as statements and exclamatives are concerned, phonological patterns found in Palermo Italian are similar to those observed in other varieties, not only those spoken in the same isogloss.

As for yes/no questions, differences are more marked, though, again, they do not allow us to identify features that are shared within one specific isogloss – see Table 2. First of all, as in many other varieties, one pattern is common to many (sub)functions (e.g. information seeking, confirmation seeking and echo). In Palermo Italian, such pattern is L*+H L%. However, this pattern is typical of the variety and, interestingly, it is not even shared with Lecce and Cosenza Italian which are spoken in the same isogloss (e.g., compare Figure 7, left panel, to the one reported in Figure 16, showing the pattern used in Lecce – see Gili Fivela *et al.*, 2015 for discussion). As observed in the other varieties of Italian, however, more than one pattern may play a specific function, possibly for stylistic reasons. In Palermo Italian, the other option in polar questions is quite often represented by a change in the boundary tone, that is L*+H H%. However, rather than being related to speech style, as suggested in the literature (see Savino, 2012 for a review), the choice of the boundary tone seems mainly to be speaker-related in the corpus analysed here, and, at least in some cases, to be possibly linked to a tendency toward the final low truncation. In fact, the percentage of H% boundary increases in the case the pattern is realized on a paroxiton word in comparison to cases in which it is realized on a proparoxiton. Moreover, no final low is realized when L*+H L% has to be implemented on an oxiton word (truncation in 100% of cases). Truncation in varieties of Italian is well known (Palermo, Grice,

1995, Bari, Savino 2000, Pisa, Gili Fivela, 2008) and is not an all-or-nothing process (Gili Fivela *et al.*, 2015), but, in the case of Palermo and the corpus analysed here, the process could also be related to the proportion of high vs. low edge tones, as the high tones would represent a sort of facilitating factor for, or even a first step toward, truncation.

Table 2 - *Information-seeking yes/no-questions: transcription of nuclear patterns found in the varieties of Italian (left table) and their stylization (right schemes); motives indicate possible groupings on the basis of nuclear tones; varieties are represented by abbreviations: Milan (MI), Turin (TO), Florence (FI), Siena (SI), Pisa (PI), Lucca (LU), Rome (RO), Pescara (PE), Naples (NA), Salerno (SA), Cosenza (CS), Bari (BA), Lecce (LE) and Palermo (PA) – adapted and updated from Gili Fivela et al. (2015)*
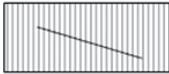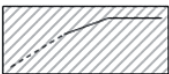
	LH%	H%	HL%	L%
H+L*	MI TO LU SA CS LE		PI LU	
H*+L	MI PI RO PE SA LE			
L+H*	TO SA CS BA			SA CS BA
H*	SI FI			
L*+H			TO NA	PA

Figure 16 - *Yes/no information seeking questions* Avete delle mandorle? *'Do you have almonds?' by a speaker from Lecce*
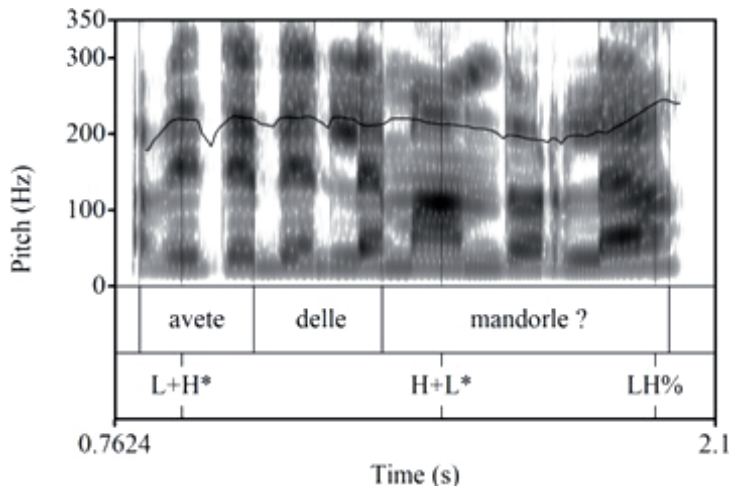
In wh- questions, the most frequent pattern in the Palermo Italian corpus is the same found in other varieties, i.e. H+L* L% with some instances involving a final high boundary tone – Table 3. Echoes are realized by means of the same pattern found in information seeking yes/no questions, confirming the general tendency observed in other varieties, though the L*+H L% pattern characterizes Palermo Italian. In counterexpectational wh questions the pitch accent found is the same observed in other varieties, confirming the homogeneity in the intonational features related to this function across Italy. However, in the corpus analysed here, the pitch accent is more often followed by a low than by a high boundary tone, and this preference seems to be peculiar in comparison to what observed in other varieties. Finally, despite the identification of the pattern which is the most widespread through Italy for expressing inform, it is not possible to state that an isogloss may be clearly delimited, as specific patterns are also found and the alternative pattern found in Palermo (e.g. Figure 11) is different from that used, for instance, in Cosenza (see the following Figure, n. 17, and see Gili Fivela *et al.*, 2015 for discussion).

Table 3 - *Information-seeking wh questions: transcription of nuclear patterns found in the varieties of Italian (left table) and their stylization (right schemes); motives represent possible groupings on the basis of nuclear tones; varieties are represented by abbreviations: Milan (MI), Turin (TO), Florence (FI), Siena (SI), Pisa (PI), Lucca (LU), Rome (RO), Pescara (PE), Naples (NA), Cosenza (CS), Salerno (SA), Bari (BA), Lecce (LE) and Palermo (PA) – adapted and updated from Gili Fivela et al. (2015)*

	LH%	H%	HL%	L%
H+L*	MI TO LU FI SI RO SA BA CS PA			MI TO PI LU SI RO NA PE CS SA BA LE PA
H*+L				
L+H*		RO CS		CS
H*				
L*+H		PE SA		PE

Commands and imperative requests are usually realized by patterns which are similar to those observed in other varieties (i.e., L+H* H+L* L% and a contrastive corrective pattern, that in Palermo Italian is represented by H*+L L%). Similarly, vocative initial calls show a quite standard pattern, that is L+H* H!H%, and, similarly to what observed in other varieties, the insistent call may be realized by repeating the same phonological pattern, though usually produced at a higher F0 frequency, or by realizing a L+H* L% pattern.

Figure 17 - *Wh information seeking questions* Cosa le regalerebbero? *'What would they gift her?' by a speaker from Cosenza*
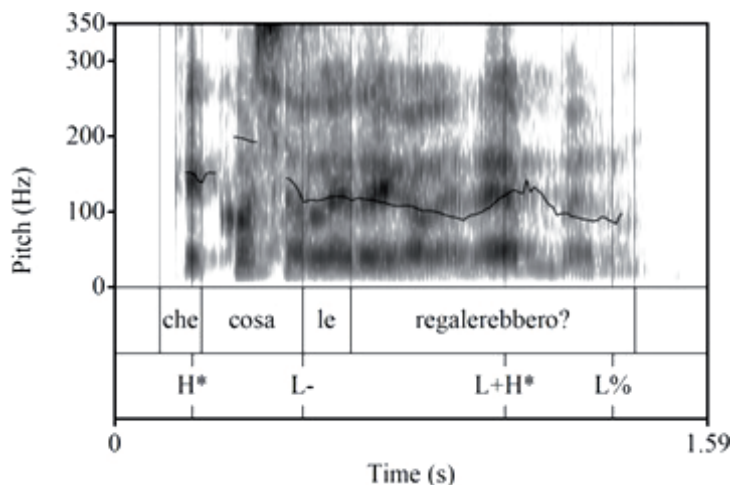
5. *Discussion and conclusion*

The analysis of Palermo Italian intonation performed in this work was carried out within the Autosegmental Metrical framework and allowed to highlight both the phonology and the main phonetic characteristics of Palermo Italian. The speech corpus analyzed here was collected by means of a variant of the Discourse Completion Task, which was indeed used to collect both spontaneous rendition, in line with the original DCT methodology, and read speech productions of a wide set of communicative contexts. Results confirmed our two hypotheses, that is that 1) a better knowledge on intonation may be reached by focusing on a wide set of communicative contexts and by considering various speech styles, and 2) cross variety variation may be better pointed out by adopting the very same methods used to investigate other varieties.

The first hypothesis was confirmed as improved knowledge related both to the analysis of sentence modalities which had investigated before and new modalities and pragmatic contexts collected for the present investigation. Indeed, in comparison to previous works taking into account the phonology of Palermo Italian (Grice, 1995; Grice *et al.*, 2005; Savino, 2012; Crocco, 2013), data showed new patterns or new pattern-to-function pairs, as well as shedding a different light on previously reported patterns. For instance, speakers were shown here to have other options to express correction focus (e.g. by means of H+L* pitch accent), and the choice in yes/no questions boundary tone (L*+H L% vs. H%) turned out to be possibly speaker dependent rather than only speech style dependent. Moreover, the present investigation showed that, in line with what observed by Gili Fivela *et al.* (2015), in Palermo Italian too it was possible to find a pattern shared by different functions (e.g., in confirmation and information seeking questions). Finally, data showed

which patterns are used in communicative contexts that were analyzed here for the first time, as in confirmation seeking and echo yes/no questions, various types of wh questions, disjunctive questions, exclamations, commands and both the initial and the insistent call in vocatives (cfr. Table 1 and Appendix 1). In fact, the composition of the tonal inventory of Palermo Italian was enriched by inserting new tonal events (L*+>H, L+¡H*, H!H%) and patterns (e.g., L*+>H L% for exclamatives, H+L* L% and H+L* H% for information seeking wh questions, L+¡H* L% and L+¡H* H% for counter-expectational wh questions, L+H* H!H% and L+H* L% for vocatives).

Moreover, as for the second hypothesis, cross-variety comparison was facilitated and enriched by adding Palermo Italian, as discussed in section 3 and in line with our main sub-goal. In particular, the addition of Palermo Italian confirmed previous observations, to start with the lack of homogeneity in intonation patterns used within isoglosses traditionally proposed in the literature on vernaculars in Italy, in this case those identified in the extreme-South of Italy. It was confirmed that in most cases a high variability is found across Italy and within a specific isogloss (both in relation to the intonation inventory selected by speakers of different varieties and to the specific functions associated with nuclear configurations). Nevertheless, Palermo Italian data also confirmed that in some cases it is possible to find one intonation pattern that can be used by speakers of different varieties, as in broad-focus statements, information seeking wh questions, counterexpectational wh questions and vocatives, as well as in lists and disjunctive questions.
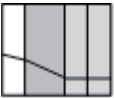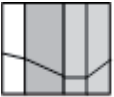
However, Palermo Italian data also clearly suggest that the specificity of a single variety does not always regard the phonological pattern *per se*, but it can be related to other characteristics. In Palermo Italian statements, for instance, quite characterizing features seem to lay in the scaling relation between prenuclear and nuclear accents (see Figure 5 and related discussion), in the distribution, at least in the corpus considered here, of intonation patterns chosen in relation to the target word stress structure (see Figure 8 and related discussion) and on the speaker related (more than speech style related) choice of pattern (see Figure 2 and related discussion). In these respects too, referring to the same methods and material is taken to facilitate cross-variety and cross-language comparison and the identification of peculiarities that are not strictly related to phonological inventories.

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Appendix 1 - *Inventory of nuclear configurations found in fourtheen varieties of Italian, their schematic representations and their use in main sentence types (adapted from* GILI FIVELA *et al.* 2015): *updating due to Palermo Italian data are underlined*

Nuclear Configuration	Sentence types where it is used
H* L%	Exclamatives (Cosenza).
H* LH%	Yes/no questions (Florence and Siena).
H+L* L%	Broad focus statements, intermediate and final item in lists, narrow informational focus (e.g., Firenze and Siena); contrastive-corrective narrow focus statements (in Pescara Italian, when realized as a high pretonic pitch accent that in long constituents corresponds to a high plateau, described as L+H* H+L*; as a second option in some varieties); exclamatives (Lucca, Milan, Salerno, Lecce); wh questions (Milan, Turin, Pisa, Lucca, Rome, Pescara, Siena, Naples, Cosenza, Salerno, Bari, Lecce, <u>Palermo</u>); final item in disjunctive questions, commands (Milan, Turin, Florence, Siena, Lucca, Pisa, Rome, Salerno, Pescara, Lecce, <u>Palermo</u>); imperative requests (Lucca, Rome, Naples, Pescara; in the latter two, the high pretonic pitch accent is found); vocative initial call (Naples and Pescara, where the high pretonic pitch accent is found).
H+L* LH%	Yes/no questions (Milan, Turin, Lucca, Salerno, Cosenza, Lecce); wh questions (Milan, Turin, Rome, Florence, Siena, Lucca, Salerno, Bari, Cosenza, <u>Palermo</u>); possibile in lists.
H+L* HL%	Yes/no questions (Pisa and Lucca).
H*+L L%	Contrastive-corrective narrow focus statements (Pisa, Rome, Pescara, Bari, Cosenza, Lecce, <u>Palermo</u>); yes/no questions (Milan, Pisa, Rome, Pescara, Salerno, Lecce); counterexpectational yes/no questions, exclamatives (Pisa, Lucca, Rome, Pescara, Salerno, Lecce); commands (Cosenza, Lecce, Pescara); imperative requests (Pisa, Cosenza, Pescara where the high pretonic variance is found, and <u>Palermo</u>), vocative insistent call (Pisa, Pescara, Lecce).
H*+L LH%	Yes/no questions (Milan, Pisa, Rome, Pescara, Salerno, Lecce).

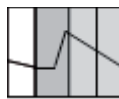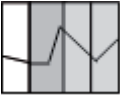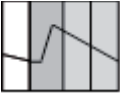|		
	L+H* L%	Not final item in lists, early narrow focus (Pisa, Lecce); wh questions (Cosenza).
	L+H* L%	Contrastive-corrective narrow focus statements (Milan, Turin, Florence, Siena, Lucca, Naples, Salerno); exclamatives (Turin, Florence, Siena, Palermo); yes/no questions (Salerno, Cosenza, Bari); counterexpectational yes/no questions; commands (Turin); imperative requests (Milan, Turin, Florence, Siena, Salerno); vocative initial call (Pisa, Lucca, Salerno, Cosenza); vocative insistent call (Milan, Turin, Florence, Pisa, Siena, Cosenza, Palermo). Alternative pattern for narrow-correction focus in Palermo Italian.
	L+H* LH%	Yes/no questions (Turin, Salerno, Cosenza, Bari).
	L+H* L!H%	Counterexpectational yes/no questions (Lecce).
	L+H* H%	Wh questions (Rome, Cosenza), possible on intermediate item in lists.
	L+H* H!H%	Vocative initial call (Milan, Turin, Florence, Siena, Pisa, Lucca, Rome, Pescara, Naples, Salerno, Cosenza, Lecce, Palermo) and insistent call (e.g., Pisa, Pescara, Salerno, Cosenza, Palermo).
	L+¡H* H%	Counterexpectational wh questions (Milan, Turin, Florence, Siena, Pisa, Lucca, Rome, Salerno, Pescara, Cosenza, Palermo).
	L+¡H* LH%	Echo yes/no questions (Lucca).
	L+¡H* L%	Counterexpectational yes/no questions (Bari); counterexpectational wh questions (Lecce, Salerno, Pescara, Palermo).
	L*+H L%	wh questions in Pescara; yes/no questions, confirmation-seeking and echo yes/no questions in Palermo (where the peak seems to be slightly delayed in comparison to the schema offered to the left); couterexpectational yes/no questions in Palermo (though the peak is as anticipated to resemble a L*+>H L% pitch accent).
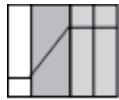
L*+H LH%   <u>Alternative patterm in couterexpectational yes/no questions (Palermo)</u>

L*+H H%   wh questions in Pescara and Salerno.

L*+H HL%   Yes/no questions (Turin and Naples, although in the latter the
L*+H HL-   low target in the pitch accent is aligned earlier and a bitonal
L%   phrase accent is found; see discussion in Gili Fivela *et al.* 2015).

L*+>H L%   Exclamatives (Turin. Milan, Lucca, Rome, Lecce, <u>Palermo</u>).