

# The intonation of polar questions in two central varieties of Italian

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## Abstract

The intonation of Italian can vary according to pragmatic and sociolinguistic factors. This paper presents an analysis of the localised intonational events conveying the pragmatic meaning of interrogation in two regional varieties of Italian (Rome and Perugia).

Data show the type and the distribution of the accents and the boundary occurring in interrogative tone groups selected from *map-task* dialogues. Results imply consideration about systemic, phonotactic and realisation aspects of the intonational system(s) of Italian, mainly regarding the marked units, their distribution and the differences related to diatopic variation. They also seem to confirm the existence of different patterns related to different kinds of questions (information-seeking vs. confirmation-seeking questions), which has been shown for other varieties of Italian.

## 1. Introduction

### 1.1. About the intonational system of Italian

Since the intonation of Italian can vary according to diatopic factors [1] [2] [3] [4] [5] [6] [7], contrastive analyses of comparable data, homogeneous both for sociolinguistic parameters and for classes of contents conveyed by means of intonation, would be particularly fruitful in order to test if, and to what extent, regional varieties actually differ. Three issues, concerning melodic inventories and phonotactics [8] [9], are relevant to this purpose: 1) the representation of the intonational forms assumed by specific accent types or specific boundary types (henceforth also *marked*<sup>1</sup>) related to specific classes of contents; 2) the actual prosodic devices which can be marked: they appear to be either accents or boundaries, but hardly ever the two together, if not for the *statement* series of the inventory; 3) the distribution of the marked units into the tone group and the existence of phonetic variants which can be attributed to the tonal context.

The rising amount of studies of Italian intonation follow auditive or perceptual or instrumental methodologies and also different theoretical approaches [1] [2] [3] [4] [5] [6] [7]; several works are devoted to question tunes in standard Italian or in some of its varieties, and contrastive instrumental studies begin to be available now [10] [11] [12] [13] [14] [15]. When data, results and proposals of representation of the different series (*declarative*, *interrogative*, *suspensive*) of the intonational system(s) of Italian are compared, a wide fluctuation can be registered regarding the three topics listed above. As far as the melodic forms belonging to the interrogative series are concerned, several studies show that differences in the inventory of the intonative accents may occur among regional varieties, and that not in all the varieties

the intonative boundary seems to be active in conveying such meaning, as it does not present a different shape if compared to the correspondent boundary of the statement series. Another interesting result emerges from the study of spontaneous conversations and map-task dialogues; different accent types have been found out, whose occurrence seems to be related to the opposition between information-seeking and confirmation-seeking questions and, more significantly, to the degree of confidence of the speaker about the correctness of the inference made in the question [11] [15]. Although such evidence is still initial and the theoretical interpretation is not yet completely defined, it represents an interesting topic to investigate, also considering that questions are expressed in Italian almost exclusively by means of intonation.

### 1.2. Classifying questions

As this study deals with questions, which represent a very complex class of pragmatic and logic-linguistic events, a preliminary short explanation is needed. The classification of questions usually lays on three logic and linguistic criteria at least: 1) the kind of answer they elicit; 2) the kind of request they are addressed to; 3) their morphosyntactic characteristics.

The first parameter gives rise to the main division between polar (yes/no) and open questions (wh-, alternative), while the second parameter causes the opposition between information-seeking and confirmation-seeking questions. Even if it is impossible here to go any further on this issue, it should be pointed out that the classes defined by the application of each criterion of analysis can variously mix and overlap with those resulting from the others.

Recently, the coding scheme proposed for the annotation of conversational moves in map-task dialogues has originated different distinctions, fitted in the framework of discourse analysis [16]; initiating moves, to which questions belong, are classified according to their purposes, also recalling the second criterion above mentioned [16]: anyway, the relation between the two classifications is not completely clear-cut yet [15]. Conversational moves consisting of questions (*check*, *align*, *query wh-* and *query y/n*) do not entail a direct connection with a single class of questions [16]: then y/n questions can occur in more than one kind of move.

This study is based on the identification of questions according to logic-linguistic criteria; the results of the prosodic analysis are then matched with the classification of the conversational moves, which has also been applied. The present report is limited to polar questions.

## 2. Corpus and methodology

The sample of questions analysed in this work has been selected from 4 map-task dialogues (Rome and Perugia varieties) performed by 8 speakers. The dialogues are part of the national corpus CLIPS (*Corpora e Lessici di Italiano*

<sup>1</sup> The term will be referred here in a generic sense to *question* accent or boundary types as opposite to *statement* types.

*Parlato e Scritto*)<sup>2</sup> [17], in which they are named DGmtA01R, DGmtB04R, DGmtA04O, DGmtB03O. In the CLIPS corpus all the speakers of the task-oriented dialogues are university students, aged 20-25, born and living in the home town they represent. Some previous phonetic analyses are available for the Rome Italian [14] but none for the Perugia Italian.

The analysis starts from the segmentation of the turns into tone groups; it is based on phonetic-acoustic criteria (final lengthening, prosodic cohesion and general trends of F0 and energy) and is always matched with the uditive parsing. Then the F0 curve is manually annotated using the INTSINT system (configurational version) [18]<sup>3</sup>: this choice implies that tonal targets always consist of turning points or *plateaux* on a falling or rising monotonic stretch of pitch. Starting from a phonetic description of the marked accent and boundary types, some problems related to the nearly-phonological transcription will be discussed.

Table 1 shows the sample of tone groups analysed; 16 of them (21%) are question tags; in 12 cases (16%) the relevant movements are associated with monosyllabic words.

Table 1: Number of interrogative tone groups.

	Rome	Perugia	Total
No	35	42	77

### 3. Data and discussion

#### 3.1. Accent types

Marked accents are found in both varieties and are used by all speakers (55 cases in all; see table 2). Anyway, the actual interrogative value is not always undoubted (56% of total cases), as some intonative forms found here are very similar to the forms of the declarative series. In a previous work, carried out on dialogues of the same varieties, an evidence of two different accentual shapes was found out [19]; the present analysis confirm those preliminary notes.

The most frequent interrogative accent presents a rising-falling shape, consisting of a tonal sequence LHL. The rise usually starts on the preceding syllable and ends at the beginning of the nucleus of the accented syllable; from there onwards the falling movement takes place ending within the same syllable or near by its edge. In 15 cases a slightly different configuration of the accent occurs: its phonetic tonal sequence can be represented as HL. The acoustic features are similar to those of the LHL shape, but the initial rise does not take place. It is worth noticing that the phonetic difference between the two tonal configurations could be attributed to the tonal environment. In fact, as for the HL accent, the H target usually represents the end point of a *plateau* which usually starts from a preceding H target of a pitch accent of one of the preceding words. This phenomenon could be interpreted as a contextual phonetic variation of the same phonological form, the LHL accent. Then, henceforth the second accentual shape will be referred to as (L)HL.

Table 2: Accent shapes: number and percentages.

	Rome		Perugia		Total	
	No.	%	No.	%	No.	%
LHL	25	81%	10	42%	35	64%
(L)HL	5	16%	10	42%	15	27%
LH	1	3%	4	16%	5	9%
Total	31	100%	24	100%	55	100%

LHL and (L)HL forms are related to the request of confirmation of an inference made by the speaker, then implying a good degree of confidence as to its correctness, and are generally oriented to a positive answer. These accentual shapes can occur in queries, checks and align moves (see also [15]). It should be pointed out that they can be selected in questions about both textually and situationally accessible information; in fact, since all details of the map could represent given information for both the speakers, because each of them has his own map, all the questions asking details about the route could be considered to refer to situationally recoverable information, even if such information can also be, at the same time, textually new.

The example shown below comes from the Rome corpus. The speaker asks for confirmation about the presence of a picture on the map. The accent is on the syllable *chia*, the rhythmical strong position of the word *occhiali* (glasses).

p2\_G#152: ... e arrivi fino quasi alle stecchette degli occhiali,  
tu li vedi gli ocCHIALi?

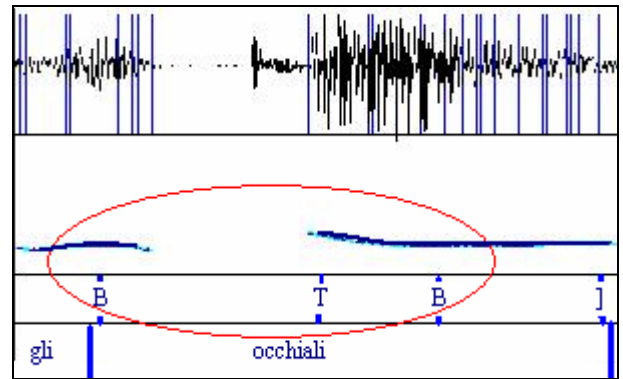


Figure 1: LHL accent. Turn: DGmtA01R\_p2\_G#152.

Furthermore, a third shape of accent is registered, whose occurrence in this corpus is very rare (just 5 cases). It consists of a rising movement ending on the rightmost edge of the accented syllable and starting not beyond the edge of the preceding syllable; it then presents a tonal sequence LH. This form is related to information-seeking questions, which usually correspond to tentative checks or to queries.

#### 3.2. Boundary types

The interrogative boundary consists of a rise of the F0 values both in Rome and Perugia Italian. The tonal sequence is then LH and it is completely associated with the last syllable of the tone group, whether it is weak or strong.

A contextual variation of the phonetic form of the edge tone has been found in very rare cases, particularly when the LH accent occurs at the rightmost strong position of the tone

<sup>2</sup> CLIPS will be published online (url: [www.clips.unina.it](http://www.clips.unina.it)). Sampling rate: 22050. Quantization: 16 bit.

<sup>3</sup> Phonetic analysis: Praat 4.3.31.

group: the F0 goes on with high levels until the end of the prosodic group, instead of falling down to the baseline or so; previous works carried out on similar materials and different kinds of questions (*swap the difference* dialogues, same speakers, CLIPS corpus) show that the phenomenon takes place even if a weak position lies between the strong syllable, which carries the marked accent, and the rightmost weak syllable, which would be the place of the edge tone<sup>4</sup> [19] [20].

Table 3 reports the distribution of the boundary between the two corpora. An example of LH boundary is given below; it comes from the Perugia corpus. Figure 2 shows it.

p2\_G#90: parti e ti trovi sopra una barca, non c'è una barCA?

Table 3: Boundary shapes: number and percentages.

	Rome		Perugia		Total	
LH	13	26%	37	74%	50	100%
H	-	-	3	100%	3	100%
Total	13	25%	40	75%	53	100%

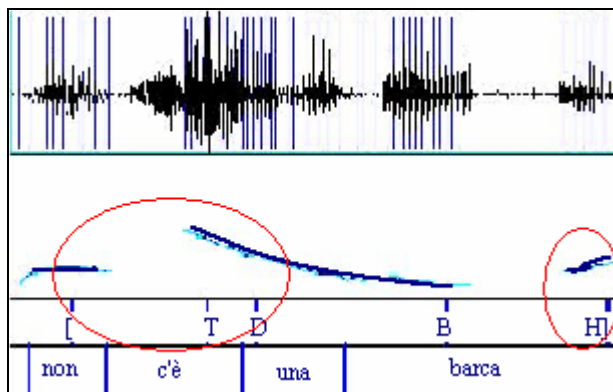


Figure 2: LH boundary. Turn: DGmtB03O\_p2\_G#90.

In the Rome corpus, a further form of the boundary has been found, occurring after the LHL accent. It is a flat boundary, consisting of constant values on low levels of the f0 and starting from the last preceding L target. These dialogues present a total of 17 cases. Anyway, further investigations are needed to explain if such boundary is related exclusively to interrogative meanings.

### 3.3. Distribution of the marked devices

In the corpus here considered the actual phonetic realisation of the interrogative pattern is various. The distribution of the specific accents and boundaries found here can be represented by the combination of occurrence of the two marked units in the intonational group. Three possibilities have been found in both varieties: a) marked accent; b) marked boundary; c) marked accent and marked boundary together. Such evidence would suggest that the selection of interrogative accents and interrogative boundaries is not mutually constrained, because they can occur together even if they do not necessarily imply each other.

<sup>4</sup> For phonological processes postulated in intonational phonology (truncation/compression or repulsion due to tonal crowding) see [8:132 ff.] and [9:133 ff.] for a review and for references.

Table 4 reports data on the different combinations (A = accent; B = boundary; A+B = accent and boundary); L constant boundaries are excluded; monosyllabic words whose pitch movement cannot be clearly classified as accent or boundary are counted separately. Figure 2 shows a case in which the LH boundary occurs together with the LHL accent.

Table 4: Combination of accents and boundaries into the intonational groups: number and percentages.

	Rome		Perugia		Total	
B	1	3%	7	17%	8	10%
A	19	55%	2	5%	21	28%
A+B	9	26%	22	52%	31	40%
monosyllable	3	9%	9	21%	12	16%
No mark	3	9%	2	5%	5	6%
Total	35	100%	42	100%	77	100%

### 3.4. Excursion size

For each speaker of each dialogue the excursion size of the relevant pitch movements described above is available. Table 5 and table 6 show the comparison among the mean values calculated in semitones (ST). Data on the LHL accent add details to its representation: the last L target appears to be either lower than the initial L target or on similar levels.

Table 5: LHL accent: mean excursion size in ST.

Dialogue name		Rome		Perugia	
		A01R	B04R	A04O	B03O
Speaker 1	Rise	1.8	3.1	2.1	2.1
	Fall	- 3	- 5.5	- 2.5	- 6.5
Speaker 2	Rise	2.9	2.5	2.9	3.7
	Fall	- 2.6	- 3.7	- 2.5	- 4.5

Table 6: LH boundary: mean excursion size in ST.

Dialogue name		Rome		Perugia	
		A01R	B04R	A04O	B03O
Speaker 1		2.6	-	3.3	3.5
Speaker 2		1	1.8	2.1	2.9

## 4. Conclusion

Data reported above allow several considerations about the intonational system of Italian and about the degree of variability due to diatopic factors.

Interrogation meanings are conveyed by both the prosodic devices: in fact, specific pitch accents and boundaries are found to be used by the speakers of both varieties. The existence of contextually constrained variations of the tonal forms, due to the adjacency of particular sequences of target points, also seems to be possible.

Furthermore, the distribution of the two marked devices in the intonational group would suggest that their selection is not necessarily mutually constrained. This property could be related to the primary phonological function that the accent and the boundary respectively play: culminative or demarcative; one could hypothesize that the interrogative accent is used when a focalization is also needed for the lexical item, and the phrase, carrying it.

The comparison carried out in this work also shows a consistent similarity among the tonal sequences that interrogative accents and boundaries can assume in the two varieties; similar shapes occur in the Rome and in the Perugia corpus, except for the L constant boundary.

As for differences related to the diatopic factors, a first element which should be considered is the distribution and the use of the types of accents and boundaries shown. In fact, the frequency of occurrence of the rising boundaries is higher in the Perugia corpus than it is in the Rome corpus. Furthermore, the LHL configuration of the interrogative accent is more frequent in the Rome corpus; probably it could be also the general configuration of the interrogative accent in this variety, as the comparison with other phonetic descriptions would confirm [14]. The L constant boundary appears to be characteristic of the Rome variety [14].

The last step of this analysis would be a preliminary proposal of representation through a ToBI-like system, taking into account all the phonetic features examined and the contextual effects registered. The phonological transcription of the interrogative accent used for asking for confirmation could be H\*+L; it would be opposed in the inventory to an interrogative L+H\* accent used for asking about new information and new topic [19] [20]. The phonological representation of the boundary could be H%.

Anyway, the task becomes really problematic if the whole inventory of the intonational events known for Italian is considered, and if the representation of timing details, or other phonetic details which could be relevant to the phonological contrast among different series, is taken into account. In fact, these varieties also present continuation tunes consisting of accents and boundaries which show tonal sequences very similar to the interrogative tonal sequences [19] [20]; furthermore, the configuration of the (L)HL interrogative accent is very similar to the shape of the accent used for broad focus in declarative patterns. Then, in our opinion, the phonological representation of the different units of each series of the inventory can be provided only by basing it on a preliminary distinction among these facts. The phonetic features involved in the tonal contrast among the different series of intonational events should be better investigated for these varieties as well as for others. The contrastive analysis, in fact, well shows that the representation of different tunes and different units which are similar in their tonal sequence would become difficult to achieve without considering other phonetic details (see also issues in the phonetic and phonological representation in [2][3][5][6][7][12][13][21]).

To summarize, a strong similarity has been found in the phonological system as for the selection of accents and boundaries, for their shapes, and for the phonetic-phonological phenomena due to the adjacency of tones.

Dealing with spontaneous speech, a certain amount of phonetic variability and reduction could be hypothesized also for the prosodic events and then the initial evidence found here should be further tested on larger and different corpora.

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