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Information structure and questions - Evidence from task-oriented dialogues in a variety of Italian[*]

1. Introduction

This paper takes as its starting point the fact that there is an established distinction between information-seeking and confirmation-seeking questions (e.g. Bolinger 1989). In the former the speaker believes the information being asked about is neither directly nor indirectly recoverable in any way: new information. Confirmation-seeking questions on the other hand are about information which the speaker believes has already been conveyed: given information. Although many studies have concentrated on English, the distinction between the two types of question is also considered to be cross-linguistic.

Such a distinction has been made in the analysis of a task-oriented (HCRC Map Task) dialogue corpus in English where information-seeking questions are referred to as QUERIES and confirmation-seeking questions as CHECKS (Carletta et al. 1997, Grice et al. 1995). In the canonical examples given in English, QUERIES and CHECKS are syntactically distinct (Kowtko et al. 1992; Carletta et al. 1995); "Do you have a rockfall?" and "So you want me to go down two inches?", respectively[1]. The former uses interrogative and the latter declarative syntax.

The present study investigates how far such a distinction can be made in Italian, confining our attention to questions eliciting an affirmative or negative reply: yes-no or polar questions. Italian is particularly interesting since it does not have a distinct interrogative syntax in polar questions. "Vado a destra" can be translated as "I go to the right" (statement), "Do I go to the right?" (QUERY) or "(So) I go to the right?" (CHECK), depending on a combination of the context in which the question is uttered and on the choice of intonation pattern.

Since intonation plays a more important role in Italian than in English in signalling illocutionary force, more attention has to be paid either directly or indirectly to the intonation when classifying moves such as QUERY and CHECK. This leads to unavoidable circularity, since the speech cannot be listened to without the intonation being taken into account, even if it is not formally analysed. That is, in Italian, the decision as to whether an utterance is a QUERY or a CHECK relied heavily on the speech file, whereas in English the speech file was an additional source of data but not the main one[2].

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[1] These questions refer to landmarks and routes on maps. More information on this is given in section 2.

[2] Carletta et al. report that coding was carried out using "[...] normal working procedures, which included access to the speech as well as the transcripts" (1997: 25).

Nonetheless, in a previous study (Grice and Savino 1997) we found that distinguishing QUERIES and CHECKS by means of intonation was not straightforward, since certain CHECKS and other move types could have the same intonation pattern as QUERIES. It is our view that the problem lies in the classification of given and new information which is behind the QUERY/CHECK distinction. We therefore propose a more elaborate analysis of information structure which should throw light on the role of textual and situational context in the analysis as well as that of speaker consciousness.

This study is exploratory in nature, and is meant to lay the foundations for further analysis of the dialogue corpus we are currently working with. This corpus is briefly described in section 2. Sections 3 and 4 provide a sketch of the intonation model and dialogue act classification employed. Section 5 introduces the model of information structure proposed for the analysis of the questions in the corpus, in particular whether questions are about given, new or accessible information. Section 6 gives examples of QUERIES and CHECKS along with their information structure analysis, starting with prototypical QUERIES and CHECKS, and following with less prototypical CHECK moves and a special type of CHECK, the ALIGN move. The notion of speaker confidence as to whether a CHECK will receive confirmation will then be used to account for differences in the intonation patterns of the less prototypical CHECKS. Section 7 deals with a further move where the information is given but where the speaker challenges the inference made in the previous turn.

2.   Dialogue corpus

The original HCRC Map Task (Anderson et al. 1991) involves verbal co-operation between two participants who each have a map. The task entails reproducing as accurately as possible the route which is printed on one map to the other map, which is without a route. The task is complicated by the fact that there are a number of discrepancies across the two maps in the presence or position of certain landmarks.

A new set of maps was specially constructed for the Italian task. Since our aim was less general purpose than the HCRC group, we introduced new features in the design of the Italian maps. In particular, the landmark names were controlled for prosodic structure, such names having antepenultimate and final stress as well as the more common penultimate stress. The Italian study also differed in the way subjects were introduced to the task: they were not informed of the discrepancies between the two maps (neither were they told that the maps were identical, although this is what they assumed). This strategy enabled us to assume that the landmarks and their position constituted shared information (situationally accessible information, see section 5 below) until a discrepancy was detected (typically after 5-10 turns). It also introduced an element of surprise into the dialogue.

Our corpus consists of 8 dialogues performed by 8 female and 8 male university educated speakers, all aged between 21 and 28 and born and living in Bari, the capital of Apulia in Southern Italy. An example of a pair of maps is included in the appendix. Four of

the dialogues were recorded within the national AVIP project and four were recorded prior to the beginning of that project[3].

3.   Intonation analysis

The intonation analysis employs a modified version of the ToBI transcription system (Beckman and Ayers 1994) using two tones, H (high) and L (low). When they occur in pitch accents, one tone is starred, indicating association with a metrically strong syllable (Pierrehumbert 1980). They may also function as boundary markers for one of two phrase types: intermediate (or minor), indicated by "-" after H or L, and intonation (or major) phrase, marked with "%". See Grice et al. (in press) for a more detailed description.

The pitch accents referred to in this paper are L+H*, which involves a low pitch target just before a high accented syllable (the peak being late in the accented syllable), H+L*, which involves a high pitch target immediately preceding a low accented syllable, and H*+L, a high target early in the accented syllable followed by a rapid fall (see Grice and Savino 1995b for a discussion of peak placement). In addition, H* and L* involve a high or low target, respectively, on the accented syllable, with no specification as to the pitch contour flanking it. The boundary tones referred to are L- and the combination L-L%, both of which give a low pitch value at the end of the phrase, and the combination L-H% which gives a slight rise up to the endpoint.

The Bari variety has been extensively studied (Grice and Savino 1995a; Savino 2001; in press), in particular the intonation used in questions (Grice and Savino 1995b; Grice et al. 1995; Grice and Savino 1997; Grice et al. 1997; Refice et al. 1997; Savino 1997). The second author, a native of the Bari variety, is responsible for the intonation labelling of this corpus along the lines of the above cited papers.

In Standard Italian[4], it is argued that the boundary tone or a combination of nuclear pitch accent and boundary tone play a role in distinguishing questions from statements (Avesani 1990; Chapallaz 1979; D'Eugenio 1982; Canepari 1980; Agard and di Pietro 1965; Grice et al. in press). In all cited studies of Standard Italian, yes-no questions have a final rising contour, transcribed as a high boundary tone. The Bari variety is different from the Standard in that it is the pitch accent which has the distinguishing function, a property shared with a number of other Southern varieties, notably Palermo (Grice 1995) and Neapolitan (D'Imperio 1997; 1999; 2001; Caputo 1993; 1996). This study investigates how far the pitch accent distinguishes between the different question types.

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[3]   Similar recordings have been made within the AVIP (Archivio di Varietà di Italiano Parlato, Spoken Italian Varieties Archive) project using speakers of the Naples and Pisa varieties of Italian (for more details see Refice et al. 2000). We not deal with these other varieties here but intend to do comparative work on these varieties in the future.

[4]   Standard Italian derives from the "cultivated" Florentine variety (*fiorentino colto*). It is worth noting that, for historical reasons, the language standardisation process in Italy has only been successfully achieved for the written form, whereas the spoken language is characterised by strong regional variations (De Mauro 1963).

4.   Question types

The questions occurring in our corpus were initially categorised using the coding scheme for conversational games used to describe the English HCRC Map Task corpus (Kowtko et al. 1992; Carletta et al. 1995; 1996; 1997). Conversational games are sequences of acts, referred to as moves, such as the possible sequence of QUERY-REPLY-ACKNOWL-EDGE moves within a QUERY game. Since each move within a given game may have a distinct intonation pattern, we confine our analysis to individual moves.

The analysis here concentrates on QUERIES and CHECKS as described in section 1 above, both of which are initiating moves within games of the same name. Furthermore, the QUERIES we analyse are all yes-no questions rather than wh-questions. In what follows, all references to QUERIES are to the yes-no type, classified as QUERY-YN in the HCRC coding scheme. In this coding scheme there is another type of question, ALIGN, where the speaker is attempting to get evidence that the transfer was successful so as to move onto the next game. Examples of ALIGNS might be "Have you drawn it?" or "OK?". They may seek information about new or given material within the discourse and may thus pattern with either of the above-mentioned question moves. Another move-type found in our corpus is not categorised in the HCRC Map Task coding scheme, but may be fitted into the framework as a responding move which indicates that the communication has been unsuccessful. We refer to this move as OBJECT[5] (Grice and Savino 1997). It is used to point out that there has been a break-down in communication, such that the game cannot continue until common ground is re-established.

OBJECT moves contrast with ACKNOWLEDGE moves. These latter indicate that communication has been successful, and encourage the interlocutor to proceed with the game. In sections 6 and 7 we relate these move types to the distinction between given and new information and the notion of accessibility of information. Before doing this we give more detail, in section 5, as to what is meant by accessibility.

5.   Accessibility of information

One of the problems encountered in coding dialogue acts and moves according to whether they are QUERIES or CHECKS is the problem of establishing which information is new. Since we are dealing with questions, the issue is whether the speaker is asking about information which is recoverable in some way or not. To answer this we need to have a way of determining whether something mentioned earlier on in the dialogue counts as recoverable, and therefore given, and whether something mentioned earlier, say, 5 turns previously, counts as less given than something which has just been mentioned. Another problem is encountered in distinguishing between information which is recoverable from the context

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[5]   The name reflects the verb form, pronounced obJECT, in the sense that the speaker is objecting to what has been said.

(and therefore to some extent given) from information which is not (and therefore completely new).

It has been argued by Chafe (1994) that it is impossible to understand the distinction between given and new without taking into account consciousness (also Chafe 1974: 76). He proposed that the distinction should be viewed in terms of active and inactive information, leading to a tripartite distinction, as follows.

New information   - newly activated at this point in the conversation
Given information   - already active at this point in the conversation
Accessible information - activated from a previous semiactive state
                                        (i.e. neither totally new nor totally given)

Accessible information is further specified in terms of how the access is achieved. These different types of accessibility are listed below.

Textually accessible   - active at an earlier time in the discourse
Inferentially accessible - directly associated with an idea that is or was active
                                        in the discourse[6]
Situationally accessible - is associated with the non-linguistic environment
                                        (i.e. peripherally active but not focussed on at this point in the
                                        conversation)

The concept of given information is thus narrowed down to that which involves currently evoked text (e.g. information which is currently active in the discourse, having been mentioned immediately prior to the current turn) as well as situationally evoked information which is focussed on (e.g. the current speaker or interlocutor), see also Lambrecht (1994). Textually displaced items are not considered to be given (see also Yule 1981). Since our data contains few references to the second type of given information ("Who am I talking to?"), we restrict our attention to given information in the sense that it is textually given.

6.   Intonation, moves and information structure

In this section, the intonation contours used for each type of move will be discussed and each exemplified, along with the dialogue context from which the example has been excised (where G is the route giver and F the follower). QUERY moves always ask about information which is new. CHECK moves, on the other hand, can ask about information which is either given or accessible. Each of the different kinds of givenness and accessibility discussed in section 5 is illustrated below.

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[6]   Inferences in discourse can be due to linguistic decoding (e.g. an antecedent in the discourse is a synonym of the current item) or pragmatics (e.g. an antecedent gives information as to the scenario in which the current item is typically present).

6.1 QUERY Moves: asking about new information

QUERY moves ask about information which is inaccessible and neither active nor semi-active, i.e. new information. Typically QUERIES ask about the presence of landmarks on the other person's map. These questions are asked after the speakers have established that the two maps are different. Information as to the presence of a previously unmentioned landmark is new, since it cannot be assumed to be present on the partner's map unless the partner has said so explicitly.

Queries typically have a rising-falling intonation pattern, rising up to the accented syllable and down from it, transcribed as L+H* L-L%. A typical example is given in Example 1, Figure 1.

Example 1.

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G: in verticale sì verso il basso passando sempre a sinistra della Via Splendida anche <pause>	G: vertically yes towards the bottom always keeping to the left of Splendid Road too <pause>
F: ma io non c'ho segnata la Via Splendida <pause> io ho il Giardino delle Visite	F: but I don't have Splendid Road marked <pause> I have the Visitor's Garden
G: soltanto ?	G: only that?
F: <mm>	F: <mm>
G: e non c'è la via splendida ?	G: and there's no Splendid Road?
F: no stagno delle libellule ho <pause> a destra del bar da Liolà	F: no I have Dragonfly Pond <pause> to the right of Bar Liolà
G: <mm>	G: <mm>
[...]	[...]
G: piega di nuovo verso destra	G: turn again towards the right
F: sì	F: yes
G: a questo punto <eeh> hai un LEONE? ** L+H***	**G: at this point <uh> do you have a lion?**
F: <eeh> sì sul margi+ cioè diciamo quasi a metà sulla destra	F: <uh> yes at the edge that is let's say almost halfway up on the right
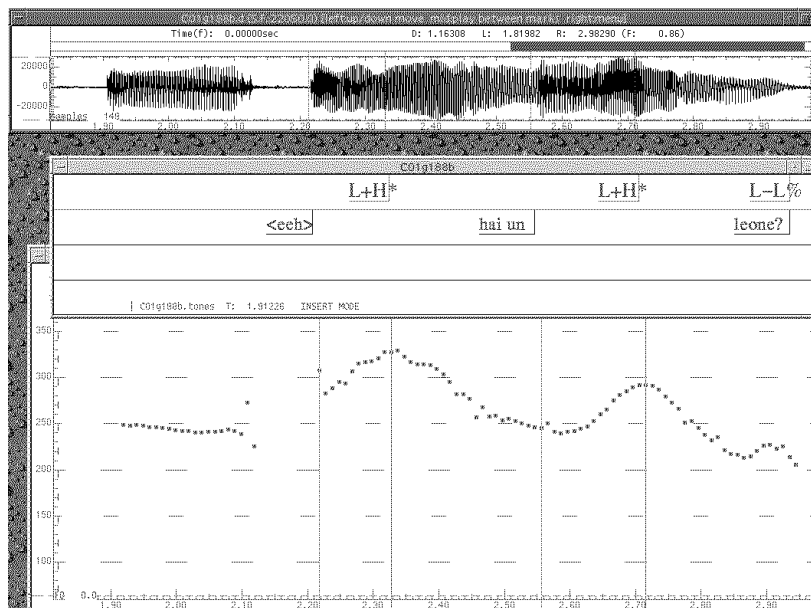
Figure 1. Typical QUERY move. In this and all figures, from top to bottom are speech waveform, full tonal and orthographic transcriptions and F0 track. See section 3 for further explanation of tonal categories used. The distinctive prosodic feature for QUERIES is the rising pitch accent L+H*. Leone has penultimate stress.

If the accented syllable is final in the phrase, the fall on that syllable is truncated substantially, as illustrated in Grice et al. (1995). Such an example is given in Figure 2, the context of which is given in Example 2.

Example 2.

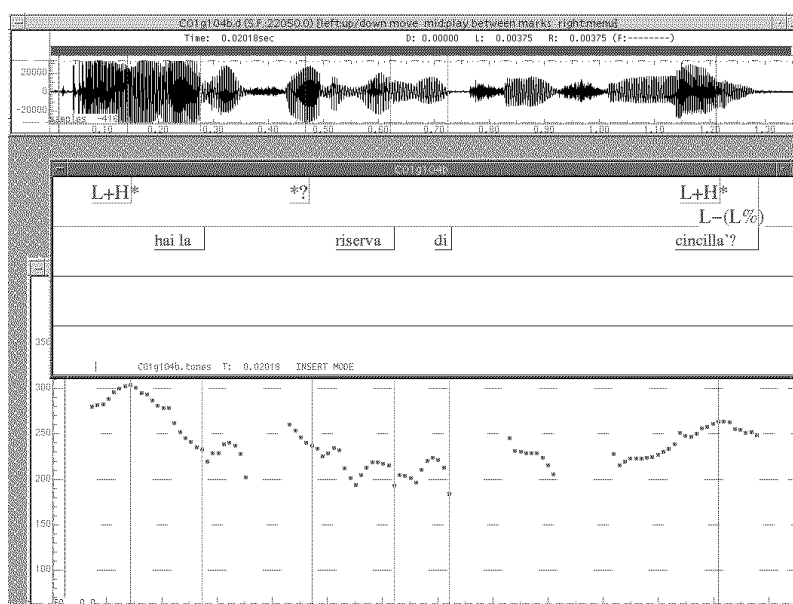|	
G: devi fare un arco sopra la miniera	G: you have to draw an arc above the mine
F: sì sì sì sì ho capito	F: yes yes yes yes I get it
G: hai la riserva di CINCILLÀ ?	**G: do you have the chinchilla reserve?**
L+H*	
F: no	F: no

Figure 2. QUERY move where the final fall is truncated: The final L+H* pitch accent occurs on the final syllable of the phrase. In this case, the boundary tones are only partially realised, i.e. there is barely a fall to the underlying low edge tones (L- and L%). '*?' is used to indicate uncertainty as to the presence of a pitch accent on the word 'riserva' (this pitch accent would probably be L+H*).

The final boundary tone may be H% instead of L%, indicating a slight rise at the end of the intonation phrase. This is illustrated in Example 3 (Figure 3). Here the nuclear word is rising-falling-rising and not simply rising-falling as in Example 1[7]. As already mentioned in section 3, it is the pitch accent, not the boundary tone, nor even a combination of the two, which is distinct in QUERIES. Instead the boundary tone appears to have a stylistic effect. Evidence to support this observation is provided by the comparison of spontaneous and read speech. Grice et al. (1997) and Refice et al. (1997) showed that very few spontaneous yes-no questions had a final rise (under 2%, 7/52). When speakers were asked to read a transcript of these same questions embedded in an equivalent context, they produced final rises most of the time (78%), thus indicating a strong effect of speaking style on intonation phrase final boundary tones.

Example 3.

G: e poi, con una linea tratteggiata, spostati leggermente verso destra	G: and then, with a dashed line, move slightly towards the right
F: <mm> subito dopo la partenza? non c'è un percorso dritto subito dopo la partenza	F: <mm> straight after the start? I can't draw a straight route straight after the start I

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7   The question arises as to whether Figure 2 contains a H% rather than a L%. Here we would argue that it is not possible to provide a definitive answer, due to truncation of the underlying tones.

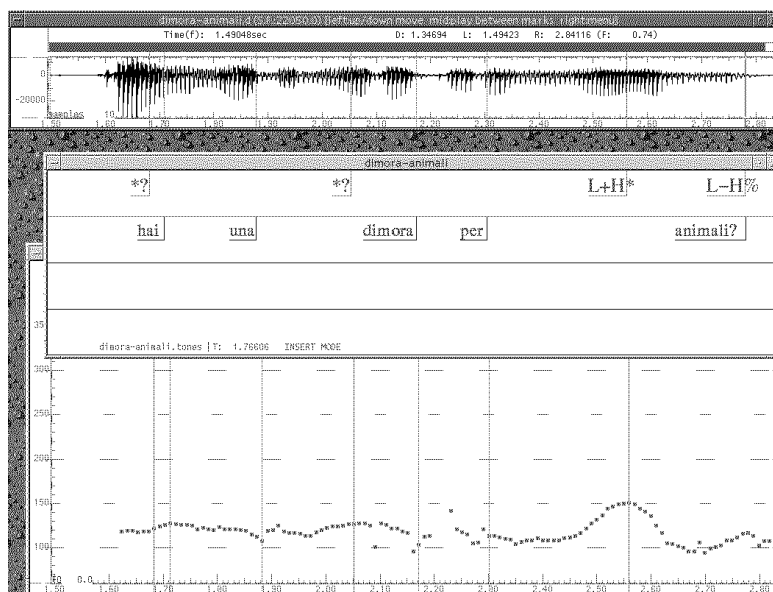|	
devo piegare subito a destra	have to turn to the right
G: <ehm> vai sí però con una linea dritta	G: <erm> but draw a straight line anyway
F: <mm>	F: <mm>
G: verso destra, non non obliquo	G: towards the right, not not diagonally
F: Stefania, cos´hai tra banane e meloni e lago Anomalo?	F: Stefania, what do you have between bananas and melons and Lake Anomalous?
G: nulla	G: nothing
F: non hai un ristorante Anima mia?	F: don't you have restaurant Anima Mia?
G: no	G: no
[...]	[...]
G: adesso piega verso il basso leggermente	G: now turn downwards slightly
F: sì	F: yes
G: per due tre centimetri	G: two or three centimetres
F: <mm> hai una dimora per ANIMALI? **L+H***	**F: <mm> do you have an animal home ?**
G: sí	G: yes
F: be'?	F: so
G: curva ancora più sotto, in direzione della dimora per animali per due centimetri	G: draw a curve further down towards the animal home two centimetres long
F: sí	F: yes

Figure 3. QUERY move with rising pitch accent as well as a final rise (L-H%) as a stylistic variant of the canonical L-L% final fall. '*?' is used to indicate uncertainty as to the presence of pitch accents on the words 'hai' and 'dimora'.

6.2 CHECK moves

There is a wide range of types of information which can be requested in CHECKS. The more prototypical CHECKS, those asking for given information, will be discussed first, in section 6.2.1, and those asking for accessible information will be treated in 6.2.2. A further, special type of CHECK, the ALIGN move, will be dealt with in 6.2.3.

6.2.1 Asking about given information

CHECK moves asking about given information always have a falling pitch accent. Italian is not the only Romance language to distinguish QUERIES from prototypical CHECKS by means of intonation. An intonational distinction has been reported for Spanish (Navarro-Tomás 1944) and Catalan (Prieto 2002) between information-seeking and "confirmatory" questions.

   In Example 4 (Figure 4) the pitch accent on the nuclear word 'destra' is !H+L*, denoting a fall onto the stressed syllable 'des'. As it is evident in Figure 4 (and in all the subsequent figures showing examples of !H+L*), this falling pitch accent is always realised with reduced pitch range. We describe such pitch compression by marking the H leading tone with the diacritic '!', which is generally used for indicating downstep (for details regarding this convention see Grice et al. in press).

Example 4.

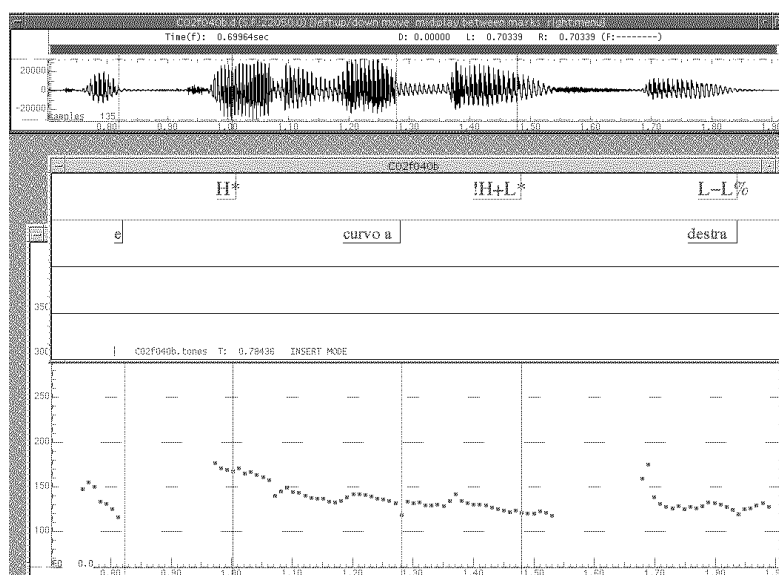| G: cioè la linea deve stare a sinistra chiaramente sali su dal Giardino delle Visite	G: that is the line has to be clearly on the left go up from the Visitors' Garden
F: sì	F: yes
G: e fermati subito dopo che poi **devi girare a destra**	G: and stop straight after that as **you have to go round to the right**
F: subito dopo quindi al di sopra del Giardino delle Visite	F: straight after so above the Visitors' Garden
G: sì	G: yes
F: e curvo a DESTRA **!H+L***	**F: and I have to curve to the right?**
G: sì	G: yes

Figure 4. Prototypical CHECK asking about given information. The pitch accent is of the falling type. Note that it is always realised with reduced pitch range.

In our corpus, given information constitutes textually given information; a referent has been mentioned immediately prior to the current turn and is therefore (assuming cooperative principles of communication along the lines of Grice 1975) active in the speaker's consciousness.

The utterance in 4 above differs from cases where the speaker is simply repeating something to himself in that the amplitude of the utterance is comparable to that used when addressing the interlocutor rather than considerably reduced, as is the case in self-directed utterances. Furthermore, utterances which we classified as CHECKS were typically followed by confirmation from the other participant in the dialogue.

6.2.2 Asking about accessible information.

Example 5 (Figure 5) contains a CHECK asking about textually accessible information.

Example 5.

F: sopra c'è il **ristorante Anima Mia** sul leo+	F: above there is **restaurant My Soul** above (the lion)
G: Mamma Mia ?	G: My Mum?
F: Anima Mia	F: My Soul
G: <ah> va bene allora <ehm> quindi dopo <eeh> traccia una linea obliqua fino a raggiungere il<ll> il leone	G: <ah> OK then <erm> so after <er> trace a diagonal line until you reach the <er> the lion
F: okay	F: okay
G: devi passare al di sotto del leone	G: you have to go under the lion

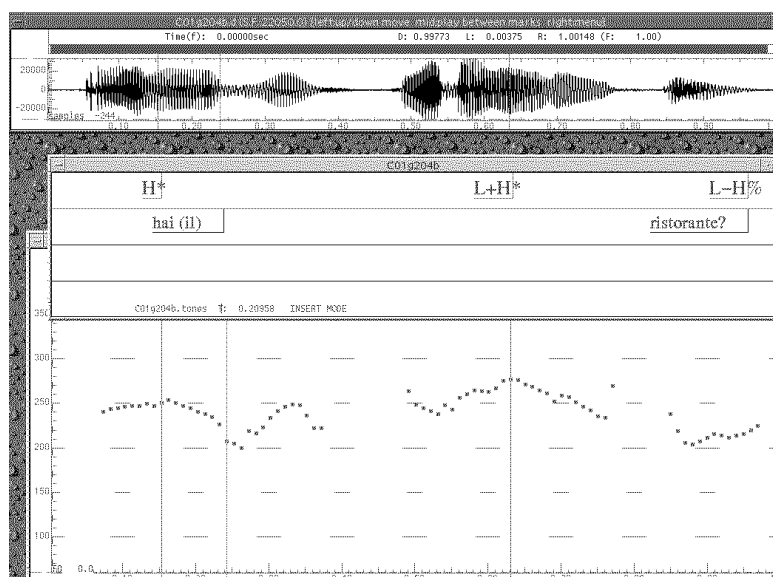|	
\<pause\>	\<pause\>
F: al di sotto del leone	F: under the lion
G: dal punto in cui sei	G: up to the point when
F: sì sì	F: yes yes
G: obliquamente al di sotto del leone	G: diagonally under the lion
F: sì ci sono	F: yes I'm there
G: circonda il leone e poi quando ti trovi al di sopra del leone fai una una curva intorno al leone	G: go round the lion and then when you are above the lion goround the lion
F: sì sì sì sono al disopra ora	F: yes yes yes I am now above it
G: hai il RISTORANTE? **L+H***	**G: you have the restaurant?**
F: Anima Mia sì	F: My Soul yes
G: sì \<ehm\> passa alla sinistra del ristorante	G: yes \<erm\> go to the left of the restaurant

Figure 5. CHECK asking about textually accessible information with a rising pitch accent

Note that in Example 5 the pitch accent is the same as in the QUERY moves. We might take this to mean that the information being asked about in the question is closer to the new end of the given-new scale. The question is also asking about the presence of a landmark, exactly as in the QUERY examples. Example 5 was not coded as a QUERY because the landmark had already been mentioned. It was therefore presumed to be accessible.

Another example of a CHECK asking about textually accessible information has a falling pitch, !H+L* as in statements, as shown in Example 6, Figure 6 below.

Example 6.

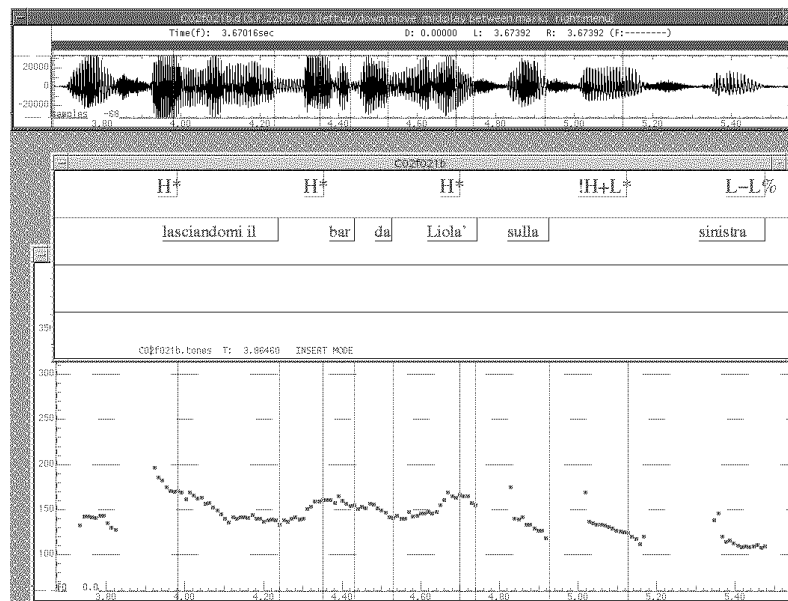|	
G: perfetto allora da\<aa\> andando verso sinistra devi scendere \<pause\> e **devi lasciare a sinistra il Bar da Liolà** e la Via Splendida	G: perfect so from \<er\> going to the left you have to go down \<pause\> and **you have to leave Bar Liola and Splendid Road to the left**
F: la Via Sp+	F: Splendid Road
G: poi	G: then
F: la Via Splendida io non ce l'ho allora aspetta io invece ho indicato una Casa del Bignè sulla destra \<pause\> ce l'hai ?	F: Splendid Road I don't have it so wait instead I have a Donut House on the right \<pause\> do you have that?
G: sì però in alto	G: yes but it is further up
F: \<eh\>	F: \<eh\>
G: al centro della mappa	G: in the middle of the map
F: io tra il Bar da Liolà e la Casa del Bignè non ho niente quindi come è è il punto su+ il successivo punto o no ? \<pause\>	F: I don't have anything between Bar Liola and Donut House so what is the next object on – the next object or not? \<pause\>
G: no \<pause\> verso il basso sotto il Bar da Liolà	G: no \<pause\> towards the bottom under Bar Liola
F: c'è il Giardino delle Visite \<pause\> sulla destra in basso a destra dal Bar da Liolà io ho il Giardino delle Visite	F: there is Visitors' Garden \<pause\> on the right at the bottom to the right of Bar Liola I have Visitors' Garden
G: e in basso in basso ?	G: and right at the bottom ?
F: non c'ho nient'altro	F: I don't have anything else
G: ho capito va be' allora vai in basso	G: I get it OK so go to the bottom
F: in basso	F: to the bottom
G: più giù giù del Giardino delle Visite	G: further down than the Visitors' Garden
F: più giù del giardino delle visite devo scendere in basso quindi sulla la+ **lasciandomi il bar da Liolà sulla SINISTRA** **!H+L***	F: further down than the Visitors' Garden I have to go down so on the ... **leaving Bar Liola to the left**
G: sulla	G: on
F: sulla <u>mia</u> sinistra ?	F: on <u>my</u> right?
G: no devi scendere andando a sinis+ cioè la linea deve essere a sinistra del bar \<pause\> il bar	G: no you have to go down going to the left that is the line should be to the left of the bar \<pause\> the bar
F: a sinistra del bar perfetto va bene	F: to the left of the bar perfect OK

Figure 6. CHECK asking about textually accessible information with a falling pitch accent.

There are no immediately apparent reasons why the restaurant in 5 should be less accessible (and therefore newer) than the fact that Bar Liola should be to the left in 6. Paradoxically, the number of turns between the previous mention and the target utterance is greater in 6. We conclude that the intonation of CHECKS asking about textually accessible information depends on other factors. It appears to be related to how active the information is in the speaker's consciousness. The restaurant appears to have become inactive for the speaker in 5, whereas the position of the bar is at least semi-active in 6. We suggest that some of the utterances classified as CHECKS on the basis of textual analysis might be in fact QUERIES from the point of view of the speaker for whom the information is inactive. This is supported by the fact that the majority of (textually accessible) CHECKS which have L+H* accents have similar content to the prototypical QUERIES given in section 6.1, i.e. they deal with the presence or absence of landmarks on the other map. By contrast, similar (textually accessible) CHECKS with H+L accents are typically concerned with the details of an action to be taken, as are the prototypical CHECKS asking about given information reported on in section 6.2.1.

CHECKS also involve questions about situationally accessible information. Typically such a question is asked about the position of (rather than the presence of) items which are presumed to be shared across the two maps. Such questions occur at the beginning of the task, since participants assume that the two maps are identical, as in Example 7 (Figure 7).

Example 7.

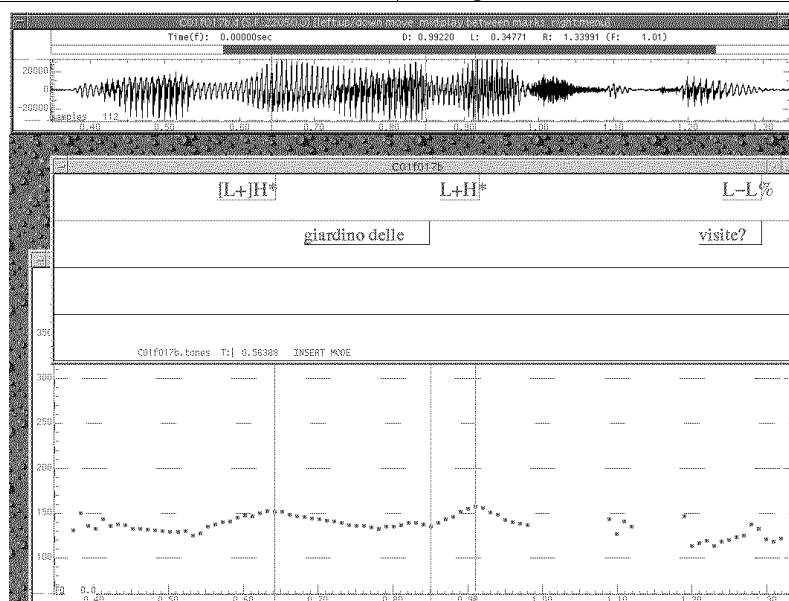|	
G: allora <eeh> dal punto di partenza devi <ehm> devi andare praticamente a sinistra del bar <pause> verso il basso **F: Giardino delle VISITE?** **L+H*** G: no allora devi dirigerti <pause> in verti-cale	G: so <er> from the starting point you have to <er> you have to go practically to the left of the bar <pause> towards the bottom **F: Visitors' Garden** G: no well you have to go <pause> verti-cally **Visitors' Garden is the following item on F's map**

Figure 7. CHECK asking about situationally accessible information with a rising pitch accent. [L] indicates uncertainty as to whether the prenuclear pitch accent is a rising L+H* or a simple peak H* accent.

However, a CHECK can occur later in the task where participants are well aware that the maps are different. This is the case in Example 8 (Figure 8), where the instruction follower has the lake as the next item on her map and requests confirmation that the instruction giver also has the lake next.

Example 8.

G: adesso l´obiettivo che io ho succes-sivamente **F: Lago ANOMALO** **H+L***	G: now the object that I have next **F: Lake Anomalous**

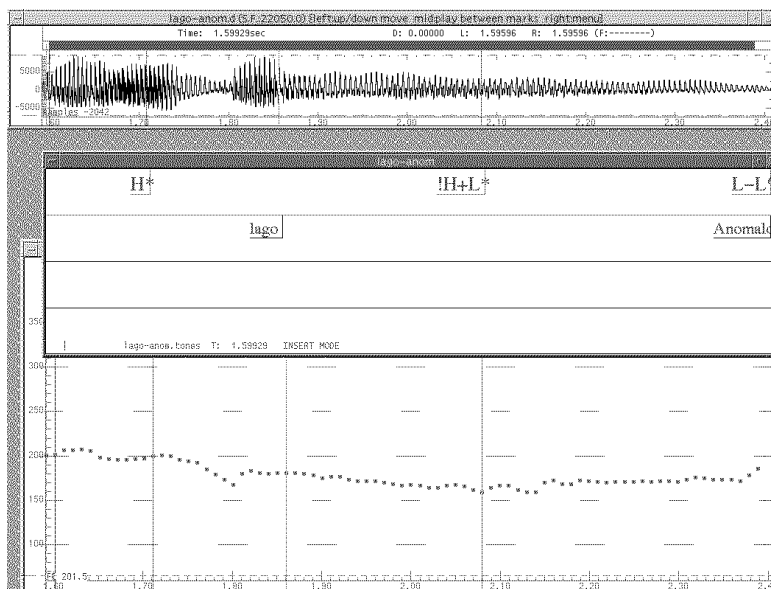| G: lago Anomalo, esattamente F: \<mm\>	G: Lake Anomalous, exactly F: \<mm\> **speakers know maps are not alike; the lake is on F's map**

Figure 8. CHECK asking about situationally accessible information with a falling pitch accent.

The difference between the target CHECK utterances in 7 and 8 appear to relate to speaker confidence as to the correctness of his or her inference which was made on the basis of situational information (in this case, the maps).

In the same way CHECKS asking for confirmation about inferentially accessible information can have a rising or falling pitch accent, see Example 9 (Figure 9) and Example 10 (Figure 10) below. In our corpus, this type of inference is typically about an action to be taken[8].

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8   The distinction between situationally and inferentially accessible information is not clear-cut. We treat situationally accessible information as a subset of inferentially accessible information, but continue to keep the two categories apart, taking inferentially accessible information to exclude situationally accessible information.

Example 9.

|	
G: sali verso l'alto piega di nuovo verso l'alto	G: go upwards bend again upwards
F: ma sulla Casa del Bignè c'è il marabù ?	F: but above Donut House is there a marabu?
G: no io non ho niente	G: no I don't have anything
F: Sottomarino Arabo ?	F: an Arab Submarine?
G: sì perfetto	G: yes perfect
F: \<mm\>	F: \<mm\>
G: Sottomarino Arabo	G: an Arab Submarine
F: allora salgo fino al sottomarino ARABO? **L+H***	**F: so I go RIGHT UP**[9] **to the Arab Submarine?**
G: sì	G: yes
	NB: *marabu* and *arab submarine* have not been previously mentioned, informants at this stage already know that the maps can be different, therefore questions in lines 2 and 4 are QUERIES
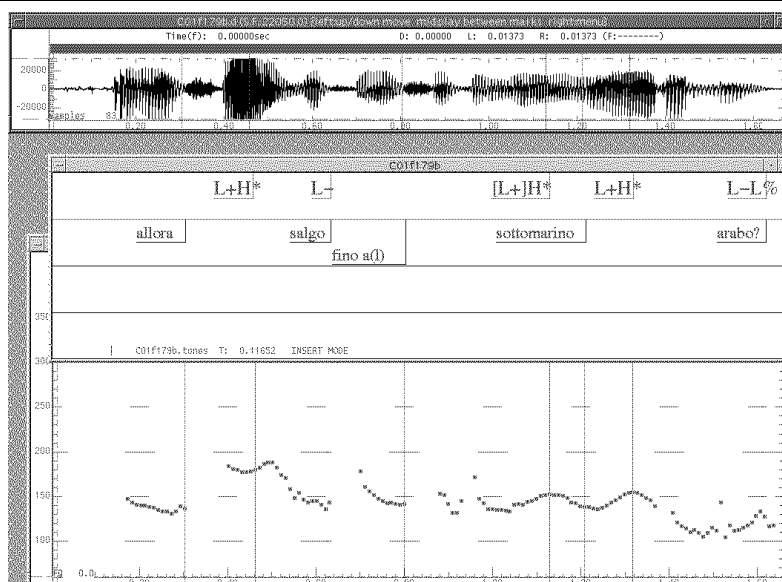
Figure 9. CHECK asking about inferentially accessible information with a rising pitch accent.

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9   Note that in Italian the focal (nuclear) accent goes on the last item in the prepositional phrase 'fino al sottomarino arabo', even if 'sottomarino arabo' is not focussed. Italian only permits early focal accents if followed by full phrases and clauses (Ladd 1996; Swerts et al., 1999; see also Grice et

Example 10.

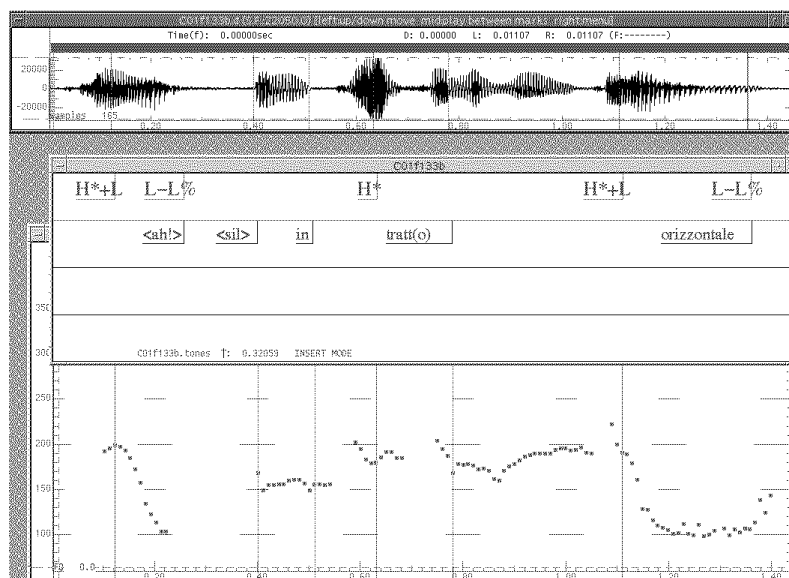|	
G: continua continuando	G: continue by continuing
F: verso il basso ?	F: towards the bottom ?
G: no continuando verso sinistra	G: no continuing towards the left
F: \<ah!\> in tratto ORIZZONTALE	**F: \<ah!\> horizontally**
H*+L	(correction)
G: sì sì obliquo leggermente obliquo sì	G: yes yes diagonally slightly diagonally yes

Figure 10. CHECK asking about inferentially accessible information with a falling pitch accent.

Before discussing a further move type, we provide in Table 1 a summary of the QUERY and CHECK moves and the pitch accents typically used in them in relation to the textual content of the question and to speaker confidence. Table 2 shows the distribution of these pitch accent types in relation to the same parameters, as resulting from the Map Task dialogues analysed

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al., in press). These are either deaccented totally or have reduced accents (reaccented, as discussed by Cruttenden, 1993).

Table 1. General trends in pitch accent types used in QUERIES and CHECKS according to the textual content of the question, and to speaker confidence that the answer will provide confirmation that the inference made in the question is correct. Prototypical QUERIES and CHECKS are in bold face. H+L is a general label for "falling accent", i.e. for both !H+L* and *H+L.

Move Type	What is being asked about?		
	Presence/ Absence of Landmark	Position of Landmark	Details of Action to be taken
QUERY	**L+H***		
CHECK (given info)			**H+L**
CHECK (textually accessible info)	L+H* (usually not confident)		H+L (usually confident)
CHECK (situationally accessible info)		L+H*(not confident) H+L (confident)	
CHECK (inferentially accessible info)			L+H* (not confident) H+L (confident)

Table 2. Distribution of accent type relating to information structure and content in queries and checks in the Bari Italian Map Task dialogues analysed. H+L is a general label for "falling accent", standing for both !H+L* and *H+L

Move type	What is being asked about ?			
	Presence/ Absence of Landmarks	Position of Landmarks	Details on Landmarks/Path	Details of Action to be taken
QUERY	L+H* (20)		L+H* (3)	
CHECK (given info)	H+L (1)		H+L (2)	H+L (7)
CHECK (textually access. info)	L+H* (9)		L+H* (1) H+L (1)	L+H* (5) H+L (10)
CHECK (situationally and inferentially acc. info)	H+L (2)	L+H* (14) H+L (6)	L+H* (1) H+L (5)	L+H* (51) H+L (49)

QUERIES typically ask about the presence or absence of landmarks on the maps. Textually similar CHECKS (i.e. those asking about the presence or absence of landmarks) have the same pitch accent. In these the landmark had already been mentioned earlier in the dialogue. The information about the landmark was therefore classified as textually accessible rather than new. Given the textual similarity between QUERIES and this type of CHECK, and the fact that they have the same pitch accent, it is possible that the landmark is inactive for the speaker, even if it has been mentioned by the interlocutor.

On the other hand, CHECKS asking about information mentioned immediately before the current turn (given information) are typically about details of an action to be taken.

These have the same falling pitch accent as textually similar CHECKS, where the information about the action had been mentioned earlier in the dialogue. In these cases it appears that the previously mentioned action is still active for the speaker.

The choice of pitch accent appears to be strongly related to speaker confidence that the dialogue partner will provide confirmation that the inference expressed in the question is correct. CHECKS with a falling pitch accent give the impression that they are strongly biased towards the expectation that confirmation will be provided. These are referred to in the table as confident. Far less confidence is displayed in CHECKS with a rising pitch accent, making them pattern with QUERIES, which are generally not biased at all towards a particular answer.

The relationship between information structure and intonational choice in questions is also evident in Table 3, showing the distribution of tonal sequences in QUERIES and CHECKS in the dialogues analysed: polar questions asking about new information are always characterised by a rising-falling contour whereas those asking about given information are always realised with a falling contour. As mentioned before, questions asking about accessible information can have both rising-falling and falling tonal sequences, depending on speaker confidence as to the correctness of the inference made in the question. Variation in these numbers can probably give some measure of the overall success in the information exchange process characterising a dialogue.

Table 3. Distribution of tonal sequences in QUERIES and CHECKS

Move type	Tonal sequence			
	L+H*L-L%	L+H*L-H%	!H+L* L-L%	H*+L L-L%
QUERY	22	1		
CHECK (given info)			10	
CHECK (accessible info)	77	4	58	15

6.3 ALIGN moves

An ALIGN move "checks the other participant's understanding or accomplishment of a goal; elicits a positive response which closes a larger game; checks alignment of both participants' plan and position in task with respect to goal; checks attention, agreement, or readiness, e.g. 'Ok?' meaning Are_you_with_me?" (Kowtko and Isard 1991). Compared to CHECKS, ALIGNS ask for confirmation as to the success of information transfer (they are normally performed by the instruction giver, as opposed to CHECKS, which are typically follower's moves), so that participants can go on with the (next) game. Typical examples of ALIGN moves are expressions like "Hai capito?" ('Have you understood?'), "Va bene?" ('Alright?'), "Possiamo cominciare?" ('Can we start?'), "Ci sei?" ('Are you with me?'); all of them have the same rising pitch accent as in QUERIES, as shown in Example 11 (Figure 11).

Example 11.

| G: dunque dopo questo bar / questo bar te lo devi lasciare sulla sinistra	G: so after this bar / this bar you have to leave it on the right
F: sì	F: yes
G: e quindi prosegui \<eeh> verso il \<eeh> un negozio di mobili Elena	G: and therefore continue \<er> towards \<er> a furniture shop called Elena
F: sì	F: yes
G: ci SEI ? **L+H***	**G: are you with me?**
F: sì	F: yes
G: arrivata al negozio \<pause> costeggi questo negozio il negozio te lo devi lasciare sempre sulla destra	G: once you get to the shop \<pause> you go round this shop, this shop you have to keep it on the right
F: sì	F: yes
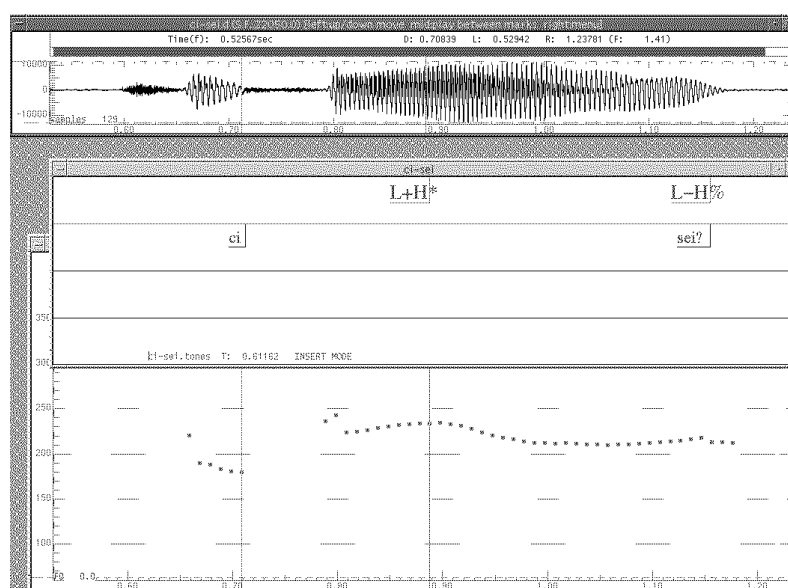
Figure 11. ALIGN move with rising pitch accent.

Like CHECKS, ALIGNS can also have falling pitch accents. Typical cases are those when the giver checks that the follower's path is correctly aligned before starting a new series of instructions (a new instructing game), as shown in Example 12 (Figure 12). Where the pitch accent is falling the giver is confident that the series of instructions transferred have been correctly understood by the follower and thus that both partners are positionally aligned (i.e. that the partner has drawn the path near 'Lake Anomalous'). Interestingly, it has also been suggested for Canadian English that rising and falling intonation in ALIGN moves may reflect "the level of the speaker's confidence" (Wright Hastie et al. 2002: 66), although

in that case the rising and falling intonation referred to the boundary tone rather than the pitch accent.

Example 12.

|	
G: allora fai questa circonferenza	G: so go round it
F: sì	F: yes
G: <eeh> e poi <ehm> devi costeggiare devi passare sotto la dimora per gli animali alla distanza di mezzo centimetro	G: <er> and then <erm> you have to go along you have to go under the Animal Home at a distance of half a centimetre
F: sì fin dove ?	F: yes up to where?
G: quindi / sino alla fine, insomma dalla parte sinistra dell'edificio e poi scendere <pause> con una linea verticale	G: so / up to the end, I mean from the left hand side of teh building and then go down <pause> with a vertical line
F: <mm>	F: <mm>
G: lievemente incurvata verso <ehm> destra in basso	G: with a slight curve <erm> to the right at the bottom
F: sì	F: yes
G: sei vicino al lago ANOMALO **H+L***	**G: are you near Lake Anomalous?**
F: sì	F: yes
G: <oh> adesso segna la croce alla sinistra del lago Anomalo e siamo arrivati	G: <oh> now draw a cross to the left of Lake Anomalous and we're there
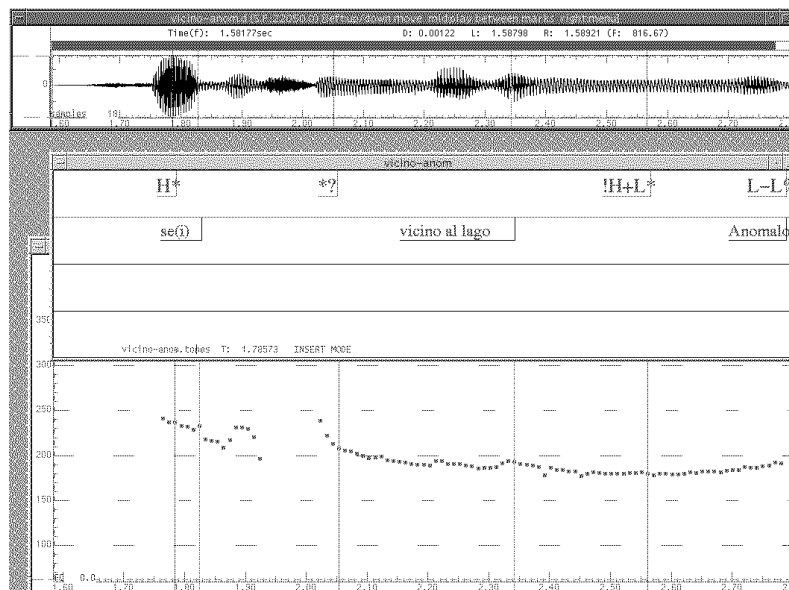
Figure 12. ALIGN move with falling pitch accent.

7.   OBJECT moves

In Bari Italian, the OBJECT moves we have examined have the same tonal analysis as QUERIES of the yes-no kind. It is not the tonal analysis but rather other parameters which appear to distinguish OBJECTS from QUERIES, viz. "breathy" voice quality and/or expanded range, both of which can signal incredulity. An example from the corpus is in 13 (Figure 13).

Example 13.

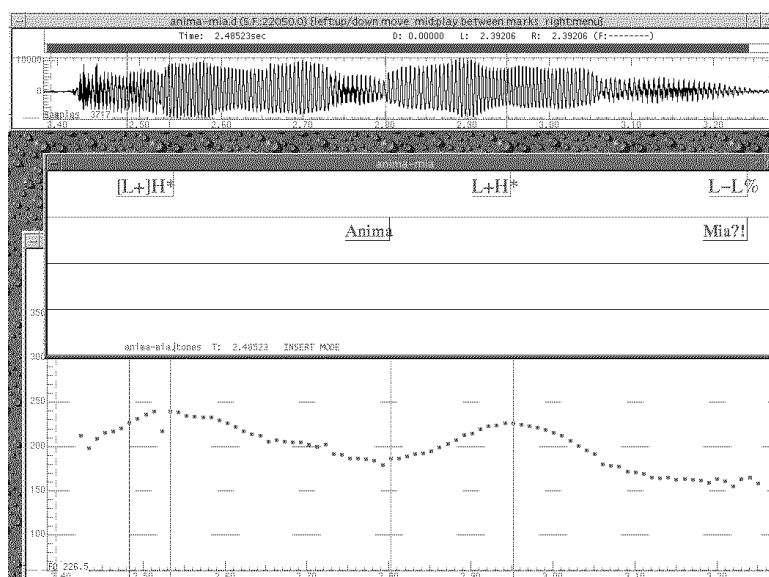|	
F: no non ho capito scusa non devo raggirare il lago ?	F: I don't get it, sorry, don't I have to go round the lake ?
G: questa / sì devi raggirare il lago sul lato del disegno che corrisponde tra il disegno e il ristorante Anima Mia	G: this / yes you have to go round the lake on the side of the picture where you find the picture and restaurant My Soul.
\<pause\>	\<pause\>
F: come Anima Mia?!	F: what do you mean My Soul?!
G: c'e l'hai il ristorante Anima Mia?	G: do you have it, restaurant My Soul?
F: Anima MIA?! **L+H***	**F: my SOUL?!**
G: \<eh\>	G: \<yeah\>
F: ANIMA?!	F: SOUL?!
G: \<eh\>	G: \<yeah\>

Figure 13. OBJECT move, where the speaker is challenging the dialogue partner.

Although the referent 'Anima mia' is textually given (mentioned by the interlocutor in the previous turn), the speaker is challenging the interlocutor's assumption that the information is mutually given.

Examples of OBJECT moves discussed below are of the type that are categorised elsewhere as "echo questions" (inter alia Cruttenden 1986), because they echo, or repeat, all or part of what has just been said by the interlocutor, or as "challenges" where there is "an element of enquiry" as to whether the interlocutor is sure of what s/he has said (Tench 1996). Because these types of OBJECT move are considered to be a category of question in the intonation literature, they are analysed here alongside moves of questioning force. However, since they could be responding within one game as well as initiating another (sub-) game, they cannot be classified as simple questions, which have only an initiating function (Carletta et al. 1997). The OBJECT category has also been recently used in coding the Australian map task dialogues (Stirling et al. 2001), indicating that it is a move type which is not confined to Italian dialogues.

8. Summary and conclusion

We found that in Bari Italian a clear distinction is made intonationally between polar questions asking about new information and those asking about given information (specifically textually given information). Questions about truly new information, where the speaker believes that the information is not shared and therefore mutually inactive, have a rising pitch accent (L+H*). At the other end of the given-new scale, questions about truly given information, where the speaker believes that the information is mutually active, are expressed with a falling accent (H*+L in a more contrastive setting, and H+L* otherwise). We can therefore say that QUERIES take L+H* whereas the more prototypical CHECKS take, along with statements, H*+L or H+L*.

CHECK moves asking about textually, situationally and inferentially accessible information can all have either rising or falling pitch accents. This variation can be accounted for if we consider speaker confidence as to the correctness of the inference made in the question. If the speaker assumes the inference to be correct, and therefore expects the interlocutor to provide confirmation of this, then the same falling pitch accent will be used as in the prototypical CHECKS. If, on the other hand, the speaker is unsure of the correctness of the inference, and there is thus no such expectation, a rising pitch accent it used, as in questions about new information (QUERIES). This explanation is supported by the fact that rising accents tend to occur more frequently after the first discrepancy has been discovered, and that tentative CHECKS asking for textually accessible information have a similar form and content to QUERIES: they ask about the presence or absence of landmarks, typically in questions of the form "Hai X?" ('Do you have X?').

Finally, we show that confidence can override the given-new distinction if a proposition expressed in the previous turn is being challenged. This often happens just before a dis-

crepancy in the maps is first discovered. In such a case, even textually given information can have a rising pitch accent.

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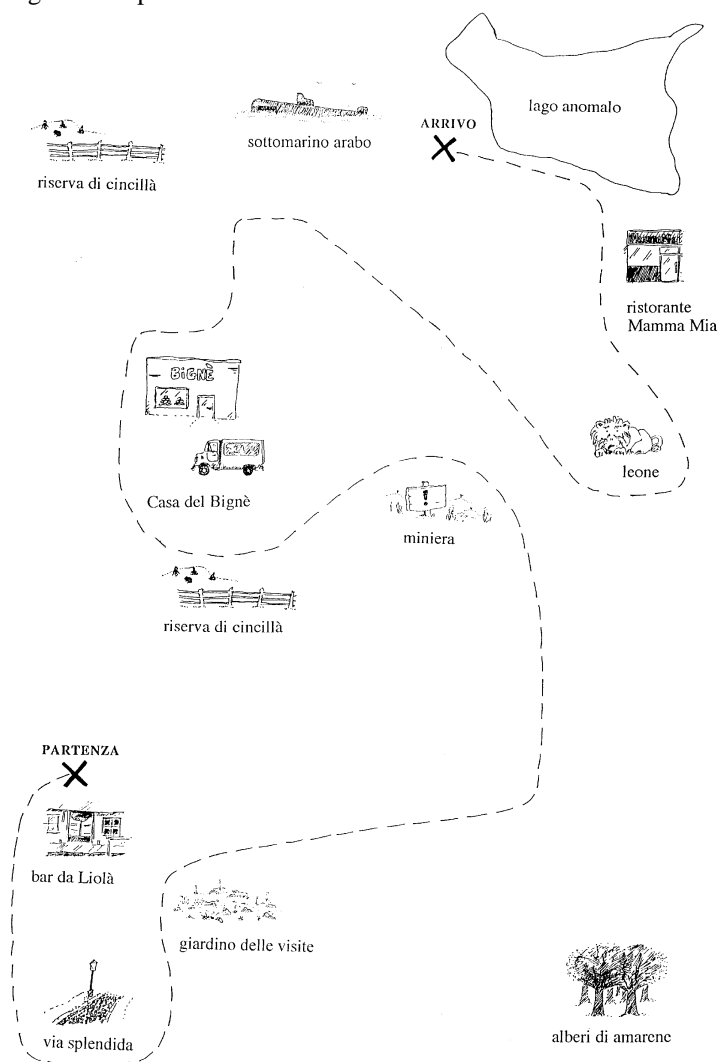
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Appendix
A) Instruction giver's map

B) instruction follower's

riserva di cincillà

sottomarino arabo

lago anomalo

marabù

ristorante
Anima Mia

Casa del Bignè

leone

miniera

PARTENZA
X

bar da Liolà

stagno delle libellule

giardino delle visite

alberi di amarene