

## **Pragmatics in the Minimalist Framework: Evidence from the study of emotional language**

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### **Abstract**

This article explores the relationship between pragmatics and the other components of grammar. Specifically, it aims to determine whether pragmatics is a distinct module of grammar coming into play at some point in the derivation process to connect the sentence with the context. The conclusion is that, based on the phenomena considered in this work, pragmatics rather than being a separate module, is *distributed* in the various components. It is shown in fact that the context immediately intervenes at the representative level to yield the correct syntax to be fed to the sensorimotor system on one side, and to the conceptual one on the other. The empirical focus of the article is on a specific type of questions in Italian, namely surprise and surprise-disapproval questions, because they are most sensitive to pragmatic factors. The syntactic, prosodic, and gestural components of these constructions will be examined, highlighting their most important characteristics.

**Keywords:** Pragmatics, Minimalism, Interfaces, emotional language, surprise, surprise-disapproval, special questions

### **1 Introduction**

This article considers some issues connected to the relationship between pragmatics and syntax in the Minimalist framework. This topic has been addressed and discussed by several scholars – see, among the many others, Allott and Wilson (2021), Domaneschi and Bambini (2020), and Wiltschko (2022). I will not reproduce or question their analyses here; the aim of this article is rather to show that as far as certain phenomena are concerned, pragmatics is *distributed*. This implies that there is no single pragmatics module operating after, or together

with, some other component of grammar but that certain pragmatic effects arise as a consequence of the interaction of the syntactic representation with the sensorimotor apparatus on one side and the conceptual one on the other. In this work, I will simply define pragmatics as the contribution of the context to the interpretation of the sentence. The notion of context is defined here as the *hic et nunc*, i.e., the *here and now*, of the speaker. Even if this might be a simplistic view, it still conveys the essence of what pragmatic considerations are in relation to linguistic empirical observations.

I will analyze some data from Italian where the context is essential in defining grammaticality and felicitousness and discuss the role of syntax and prosody, together with gesture, in obtaining the intended interpretation. In particular, I will discuss surprise and surprise-disapproval questions – see also Giorgi and Dal Farra (2019) and Giorgi (2023) – and warning expressions.

In the following section, I present a brief theoretical discussion of the main issue addressed here. Then, in section 3, I provide evidence from counter-expectational questions. In section 4, I touch on some issues concerning warnings. Finally, in section 5, I draw some conclusions on the relationship between the context and the syntactic representation of sentences and discourses.

## 2 The theoretical framework

In this section, I briefly address some theoretical notions that are relevant to this discussion: I will show the relevance of certain generalizations concerning the architecture of the system, as hypothesized by the generative theory and in particular with the Minimalism Program.

In generative grammar, especially in the latest theoretical developments, the role of sentence representation – i.e., syntax – is a central one.<sup>1</sup> By syntax, Minimalism intends *core syntax*, i.e., the basic representations that are then fed to the interfaces. The Minimalist model can be visualized as represented in the following picture:

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<sup>1</sup> See Chomsky (1995, 2000, 2008, 2013).

The T-Model

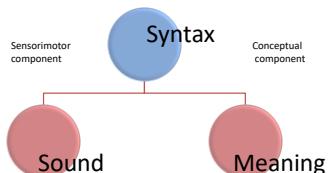


Fig.1

The Minimalist model has a T-shape, and it is often dubbed the *T-model*. As seen from the picture, the syntactic component appears in the middle, providing input to both the sensorimotor and the conceptual systems.

It's important to note that there is no direct relationship between the sound component and the meaning component. This hypothesis is the minimal, or *null*, one, as a system with a direct relationship between sound and meaning would be much more *powerful*, and, for this reason, it should be disfavored. This kind of considerations are amply discussed in Chomsky (1959) and further elaborated later by Berwick and Weinberg (1982) and Berwick (1989), among the many other scholars.<sup>2</sup> By the term *powerful*, I refer to the power of grammars in terms of *generative capacity*: the grammar to be favored is the one yielding the most accurate results with the most restrictive system, i.e., the least powerful system. Having two alternative ways to attain the same goal – i.e., the possibility of computing the relationship between sound and meaning passing through syntax, *plus* the option of relating sound and meaning without the mediation of syntax – would yield a much less constrained model than one in which there is only one way. Following the reasoning above, such a system would be less restrictive, i.e., more powerful, and therefore to be discarded in favor of the more restrictive one.<sup>3</sup>

Hence, in such a system, syntax must feed both the sensorimotor component and the conceptual

<sup>2</sup> Chomsky (1959,136): “[...]the weakest condition that can significantly be placed on grammars, is that F be included in the class of general, unrestricted Turing machine. The strongest, most limited condition that has been suggested is that each grammar is a finite Markovian source (finite automaton).” Where according to the author, natural language falls somewhere in between, in the class of context-free grammars. I will not be discussing Chomsky's hierarchy of grammars in this article, as it is not the focus of my discussion. However, the general principle for evaluating grammars remains the same: the computational system, or grammar, with the least generative capacity should be the one favored over the competing ones.

<sup>3</sup> These considerations are crucial for establishing the predictive power of a theory: the more restrictive the grammar – or in other words, the less powerful the system – the higher the predictive power. This is because a more restrictive system is easier to falsify, see Popper (1959).

one, giving rise to a syntactic representation encoding the relevant information for both systems to compute successfully. This consideration is important for the proposal discussed in this article. Let me provide here a rather trivial exemplification. Consider, for instance, the following example:

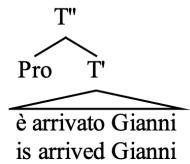
- (1) *È arrivato Gianni*

lit: is arrived Gianni

This Italian sentence features a postverbal subject and can be associated with two different intonations, an assertive one, meaning ‘Gianni arrived,’ and an interrogative one, meaning ‘Did Gianni arrive?’

Interrogative sentences like this one have been discussed in generative grammar since its very beginning, and transformations were proposed to yield interrogative sentences starting from assertive ones.<sup>4</sup> Whatever framework is adopted, however, it is clear that the syntactic structure of the assertive sentence must be different from the structure of the interrogative one. Simplifying somehow, it is possible to assign the following structure to the affirmative sentence:

- (2)

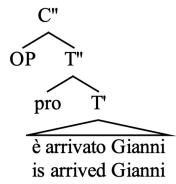


The interrogative one, on the contrary, has an additional position for an empty operator, which is the crucial item for the interrogative interpretation:

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<sup>4</sup> On this issue, see Ross (1967), Chomsky (1975) for accounts in terms of transformational rules, and Chomsky (1981) for an analysis in the *Government and Binding* framework. Reference to a transformational analysis of these constructions is provided here as an example only and will not be discussed any further.

(3)



Hence, the two interpretations correspond to two different structures. Note now that it is commonly assumed that the two readings are *disambiguated* by means of their intonational contours, given that, as investigated by many scholars, assertions and questions differ in a characteristic way.<sup>5</sup> This reasoning, however, raises an interesting question, since, according to the discussion above, in the Minimalist framework it is not possible for the intonation to have a direct effect on the interpretation. Therefore, we are led to conclude that it is the syntactic representation itself that pairs intonation and interpretation, and, in particular, the presence of the empty operator in the interrogative construction that is able to yield on one side the interrogative intonation and on the other, the interrogative interpretation.

In what follows, I will elaborate on these considerations and discuss several cases that can be successfully handled by developing this view in less studied contexts.

### 3 Special questions

#### 3.1 introduction

In this section, I discuss the so-called special questions, particularly focusing on counter-expectational surprise and surprise-disapproval questions. I will explore how these types of questions relate to the proposal I have presented in the previous section. Analysis of various kinds of special questions can be found in Munaro and Obenauer (1999), Obenauer and Poletto (2000), Munaro and Poletto (2003), and Obenauer (2004, 2006).

A special question is a sentence that exhibits the syntactic form of a question - either a yes-no

<sup>5</sup> For an analysis of the Italian interrogative intonation, see, among others, Avesani (1995) and Grice, D'Imperio, Savino, and Avesani (2005).

question or an open one - but does not convey a real interrogative meaning.<sup>6</sup> According to Giorgi and Dal Farra (2019), these types of sentences have two purposes: to express the speaker's emotions – surprise and disapproval – and to indicate to the listener that the speaker is seeking an explanation for something that is surprising them. Consider for instance the following example, discussed in Giorgi and Dal Farra (2019):<sup>7</sup>

- (4) Context: I know that John is allergic to cats, but one day I saw him holding a big cat. I am surprised and say:  
“But aren’t you allergic to cats?”

This is a surprise question. In Italian the equivalent sentence would be:

- (5) Ma non eri allergico ai gatti?  
But not were.IMPF (you) allergic to cats?

This sentence is phrased as a yes-no question, but the speaker is actually asking for an explanation, not a simple yes or no answer, as the speaker is surprised and seeking clarification for the behavior in question. For instance, an appropriate answer would be: “I got a vaccination and I’m not allergic anymore”. Interestingly, there is no doubt that a listener understands perfectly that a yes-no answer is inappropriate in this case and would not respond to the question as if it were a real one. The issue at this point is: how does the listener know that this is a special question?

The same happens with surprise-disapproval questions. Giorgi and Dal Farra (2019) discuss the following context:

- (6) I find my eldest son John kneeling in the garden, wearing his new trousers and getting them dirty. I worry he will ruin them, and say:  
“But what are you doing?”

Commentato [A1]: them = THE LISTENER AND THE SPEAKER?? Or is this for gender equality?

<sup>6</sup> Obenauer (2006) identifies three types of special questions: surprise-disapproval questions, rhetorical questions, and *can’t find the value* questions. I am not going to discuss the reasons, advantages, or disadvantages of such a partition, but in what follows I will accept it as given.

<sup>7</sup> Some English speakers prefer to omit *but*. This is also true in Italian. The syntax of this particle also has very interesting connections with the syntax of other adversative expressions, such as *però* (but, however), see Giorgi (forthcoming).

The Italian equivalent would be:

(7) Ma che fai?

But what are (you) doing?

This is an open question, but the speaker doesn't really want to know what John is doing. They only want to vent their displeasure and receive an explanation for the surprising behavior. An appropriate answer could be "I didn't have time to change", or "I want to transplant the begonias before it starts raining." Again, in this case as well, the listener has no doubt what the question is about and does not mistake it for a real question.

While the appropriateness of the answer could be attributed to an external module that computes the pragmatic felicitous conditions, I will argue that at least in these cases and in similar ones, there is no need to assume the existence of a separate external pragmatic module. I will propose that in the syntactic representation of these sentences, there is already information enough to disambiguate the structure and consider it a special question. These sentences exhibit several peculiarities which single them out with respect to real questions. These properties are not only syntactic ones, as already discussed in the literature mentioned in the introduction, but also include characteristic prosodic and gestural patterns, as I will illustrate in the following sections. Furthermore, it can be shown that the syntax, prosody and gesture are aligned, i.e., they are not independent from each other but occur (almost) simultaneously. This points to the conclusion that they respond to the same trigger.

Finally, the same properties, together with the same alignment, have been found in several languages, for instance, Spanish – see Furlan (2019) – German – see Dal Farra, Giorgi, Hinterhölzl (2018) – Neapolitan – see Marchetillo (2022) – and in languages very distant from a cultural point of view, such as Japanese, Korean and Vietnamese – see Petrocchi (2022) and Giorgi and Petrocchi (forthcoming).

### 3.2 The experimental evidence

As mentioned earlier, syntax, prosody, and gesture are interdependent and tend to occur simultaneously, i.e. are aligned. In this section, I will summarize the relevant evidence supporting this claim. Giorgi and Dal Farra (2019) conducted an experiment to analyze the syntactic, prosodic, and gestural features of surprise and surprise-disapproval special questions. The experiment involved two tasks. The first task was an elicitation task where the participants

**Commentato [A2]:** See above.

**Commentato [A3R2]:** si, è per gender equality. se la rivista ha una convenzione diversa, vi prego di correggere.

were given a particular context and asked to provide their spontaneous reaction to it.<sup>8</sup> The contexts were similar to the examples (4) – triggering surprise – and (6) – triggering surprise-disapproval – provided above. A range of answers was produced, and the ones chosen for the next experiment were similar to those provided in (5) and (7). The second task was a repetition task. After presenting the contexts, the subjects were asked to repeat the corresponding sentences, as in (5) and (7).<sup>9</sup>

Participants were videotaped. The first minutes of the test were dedicated to an interview so that they could get accustomed to the camera. Audio files were extracted from the videos, analyzed and annotated with Praat and the ToBI system. Gesture patterns and non-manual components were analyzed and annotated with ELAN.

Before analyzing prosody and gestures, however, some considerations must be made on the syntactic structure of these sentences. Although the sentences in (5) and (7) are considered grammatical by native speakers and were indeed among those produced as a reaction to the contexts in the elicitation task, in principle, these sentences should be infelicitous, and even ungrammatical.

The first observation concerns the distribution of *ma*, both in surprise and surprise-disapproval questions. Normally, sentences can be introduced by an adversative particle in contexts such as the following ones:

- (8) Gianni gioca a basket, ma non è alto  
Gianni plays basketball, but he is not tall.

However, if *Gianni gioca a basket* (Gianni plays basketball) is not realized, the clause *ma non è alto* (but he is not tall) cannot be realized by itself and the sentence is ruled out.

- (9) \*ma non è alto.  
But he is not tall.

Hence, sentences (5) and (7) are anomalous, in that, given the lack of an overt precondition to

<sup>8</sup> In both cases, i.e., surprise and surprise-disapproval, the interviewer read 4 different contexts introducing a surprise or surprise-disapproval value. Participants were then asked to produce an appropriate sentence as a response to that context. No indication was given other than “say it in the most natural way”.

<sup>9</sup> In both cases, i.e., surprise and surprise-disapproval, the interviewer read 6 different specific contexts to participants, who were then presented in a written form the questions they had to repeat. They were asked to produce the sentences in the most natural way. No reference to gestures was made in the instructions.

the second sentence, they should be ruled out, but they are not.

The second observation has to do with the verbal form present in surprise questions such as the one in (5), i.e., the presence of an imperfect. The imperfect is an anaphoric verbal form, as amply discussed in the literature on the topic, hence, if a temporal reference is not provided in the previous context (either in the same sentence or in the discourse), the sentence is ungrammatical:<sup>10</sup>

- (10) \*(Ieri alle tre) Mario mangiava un panino  
(Yesterday at three) Mario eat.IMPF a sandwich.  
'(Yesterday at three) Mario was eating a sandwich'.

This is not the case for surprise questions, where this form appears without a temporal reference and does not give rise to any anomaly.

I will not repeat the analysis presented in Giorgi and Dal Farra (2019) and Giorgi (2016, 2018). Instead, I'll summarize their conclusions. According to Giorgi (2016, 2018), *ma* in Italian has to be considered a discourse particle that links together two independent sentences to form a discourse.<sup>11</sup> Therefore, the structure to be attributed to example (8) is the following:

- (11) [ DIS" [ C" Gianni gioca a basket] [ DIS' mapIS [ C" non è alto ] ]  
Gianni plays basketball      but      he is not tall

The sentences on the left and on the right of *ma* constitute respectively the specifier and the complement of the discourse projection headed by *ma* (but). Coherently with this analysis, the structure to be attributed to examples (5) and (7) above is the following:

- (12) [ DIS" [...] [ DIS' mapIS [ C" non eri allergico ai gatti ] ]  
but      weren't you allergic to cats  
(13) [ DIS" [...] [ DIS' mapIS [ C" che fai ] ]  
But      what are you doing

In these cases, the specifier position of the discourse head is empty. Giorgi (2016, 2018)

<sup>10</sup> For further discussion of the imperfect in Italian, see Bertinetto and Delfitto (2000) and Ippolito (2004).

<sup>11</sup> These types of constructions, where *two* sentences are connected by means of a lexical (or null) discourse head which look however as a *single* sentence, are dubbed *micro-discourses* in Giorgi (2023).

proposes that the empty specifier in (12) and (13) contains the speaker's expectations. Such expectations are conveyed through prosody and gestures rather than lexical content, as will be better illustrated in a while. In other words, in these cases, there is an empty projection in the specifier position of the discourse head, playing the same role of the sentence such as *Gianni gioca a basket* (Gianni plays basketball) in example (11). Such a projection is read at the interfaces and triggers the appropriate sensorimotor realization and the appropriate interpretation.<sup>12</sup>

Consider also that the discourse head *ma* (but) can be omitted, at least by some Italian speakers, and yet the interpretation is still retrievable. This can be attributed to the fact that besides their special syntax, these sentences are characterized by a typical prosodic and gestural pattern.

Furthermore, in the light of this analysis, it is possible to say that the use of the imperfect verbal form, instead of other indicative forms, is due to the fact that surprise and disapproval arise from a mismatch between expectations and reality. According to the analysis presented in Giorgi and Pianesi (2001) and Giorgi (2010, ch3), in Italian, in fictional contexts, or in contexts pertaining to the speaker's individuality, the imperfect form must be used. In contrast, in contexts where the eventuality is connected to the *real* world, the other forms of the indicative – past and present – are required.

To conclude this brief overview regarding sentences (5) and (7), they express the speaker's emotions towards a world that does not meet their expectations. This state of affairs is represented structurally by the empty specifier of the adversative discourse head.

### 3.2.1 Surprise questions

In this section, I briefly illustrate the experimental results concerning surprise questions.

Giorgi and Dal Farra (2019) conducted a study on the properties of the prosodic contour obtained in the repetition task and found that the distribution of pitches indicates the special value of these sentences. Typically, there is a pitch on the verbal form and/or on negation, along with lengthening of the accented syllable. This pitch is emphatic, and it is important to differentiate it from contrastive accents and other focus accents by its greater extension of the maximum, its late position in the accented syllable, and the effect of lengthening of the accented syllable. Finally, it is possible to see that the intonation in these cases is always

<sup>12</sup> The speaker's expectations contradicted by the present experience can be considered as a proposition stating what the speaker expect to be true in the real world, concerning that particular case. For instance, in the surprise example above, the expectation would be the proposition: *John cannot hold cats (and he is holding a cat)*.

different from that of a regular question since the boundary tone is low and not high.  
In the following picture I show a typical intonational pattern associate with a surprise question (from Giorgi and Dal Farra 2019, 345):

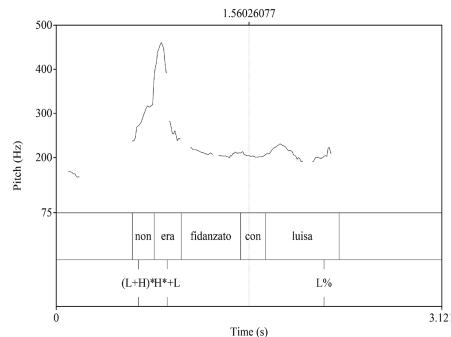


Fig. 2

This is the Praat representation of a female voice uttering the sentence *ma non era fidanzato con Luisa?* (but wasn't he engaged with Luisa?), produced in the following context:

- (14) My friend Mary told me that his brother is engaged to Luisa. One day I see him while walking hugging another girl. I'm surprised and say:

As discussed in Giorgi and Dal Farra (2019, 345), there is a rising tone over negation and the verbal form, where the pitch is reached in the nuclear syllable and is immediately followed by a lowering tone; the boundary tone is low.

As for the gesture pattern, we found a manual component and a non-manual one. The most frequent manual gesture – in 72% of the answers – was Palms Up Open Hands (PUOH, see Kendon 2004), exemplified in the following pictures (from Giorgi and Dal Farra 2019, 346-347):



Fig 3 PUOH



Fig 4 PUOH

Besides this hand gesture, we found brows raised or furrowed, as in the following pictures (from Giorgi and Dal Farra, 2019, 348-349):<sup>13</sup>

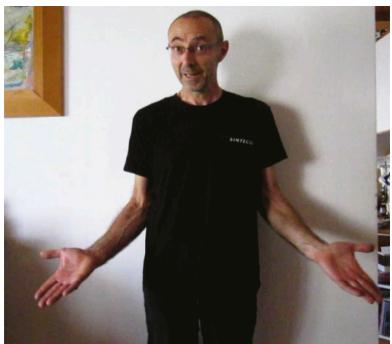


Fig 5 Brows raised

<sup>13</sup> Giorgi and Dal Farra (2019, 348) also note that in Figure 6 the head of the speaker is moved forward and lower to the side than in its base position. Moreover, palm-up is here realized with one hand only, interestingly, the non-dominant one. I will not further discuss the gestural pattern in this work.



Fig 6 Brows furrowed

Note, that following Kendon (2004), the PUOH gesture can be divided in preparation, stroke, hold, and retraction. We found that the preparation of this gesture often precedes the production of the sentence, the whole cycle overlaps the sentence and often lasts longer.

Besides the relevance of the prosodic and gestural patterns *per se*, what is relevant here is to point out their alignment and precisely the fact that both prosody and gestures are aligned with syntax. As illustrated in picture 2, the highest pitch accent is on the left of the sentence; Giorgi and Dal Farra (2019) found that in the vast majority of cases, the stroke of the PUOH gesture is actually aligned with it. In other words, the moment of maximal elevation of the hands coincides with the highest pitch accent. Furthermore, as pointed out above, the PUOH gesture starts *before* the production of the sentence. According to the syntactic representation, on the left of the structure, i.e., on the left of the adversative particle, there is the silent part of the construction – namely the expectations – which elicits the whole counter-expectational surprise question. The explanation for this pattern is that the unique syntax found in these constructions, and in particular the silent part on the left of *ma* (but), is interpreted at the interfaces. On one hand, it is interpreted by the sensorimotor component and expressed as distinct prosody and gestures, while on the other, it is analyzed by the conceptual component and given the appropriate meaning of surprise. Therefore, gestures and prosody do not disambiguate the sentence, i.e., do not make it a special question instead of a regular one, by themselves, as the necessary information for the appropriate interpretation is already present in the syntactic representation.

### 3.2.2 Surprise disapproval questions

The same generalization holds for surprise-disapproval questions, even if the prosodic contour and the gestural pattern are slightly different. Let's consider the prosodic pattern first (from Giorgi and Dal Farra, 2019, 352):

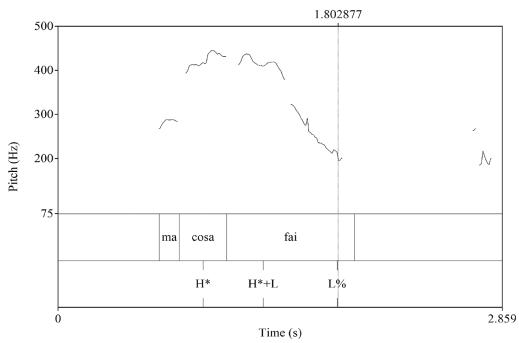


Fig 7

This is the Praat representation of a female speaker uttering “But what are you doing?” As pointed out by Giorgi and Dal Farra (2019, 352), in the prosodic realization of a surprise-disapproval question, there is a pitch on the left, i.e. on the verb and/or on the *wh*- constituent. In this case as well the intonation is different from the one of a normal question because the boundary tone is low and not high.

We found that the hand gesture can be realized in three different ways: PUOH, artichoke, and prayer. However, in all cases, the movement of the hands is rapidly iterated several times. Cf. the following pictures:<sup>14</sup>

<sup>14</sup> Giorgi and Dal Farra (2919) observe that in these cases non-manual gestures are used less than in the case of surprise questions. In several cases there furrowed brows, and movements of the head forward or to the side.



Fig 8 PUOH



Fig 9 Artichoke



Fig 10 Prayer

In this case, we considered as the stroke of the gesture the highest elevation before the beginning of the iteration movement. Again, prosody and gesture are aligned, in that the stroke coincides with the pitch on the left. Finally, the fact that the preparation of these gestures begins in correspondence with, or right before, the adversative particle *ma*, confirms the observations

above concerning the alignment with syntax. I.e., even in this case, it is possible to hypothesize that syntax triggers the sensorimotor realization as characteristic prosody and gestures, and the conceptual interpretation as a surprise-disapproval question.

These results were replicated in several languages – Spanish (Furlan 2019), German (Dal Farra, Giorgi, Hinterhölzl 2018), Neapolitan (Marchetiello 2022), Japanese, Korean and Vietnamese (Petrocchi 2022) – and in all of them it is possible to observe the same kind of alignment phenomena. Hence, the theoretical conclusions can be maintained cross-linguistically, even if the specific discussion of the gestural and prosodic patterns must be languages-specific.

#### 4 Warning expressions

##### 4.1 Introduction

Warnings follow a pattern that shares several characteristics with the example I provided in section 3. I have shown that when dealing with special questions, native speakers do not answer them as if they were straightforward questions, but instead interpret them correctly and, if the conversation goes on, offer an explanation for the surprising or annoying behavior. I also argued that this is possible due to the trigger in the syntactic representation.<sup>15</sup>

The warnings that I have investigated exhibit a similar issue. In the examples I will discuss, presentational sentences are interpreted as warnings rather than assertions, due to the fact that they are associated with a peculiar prosodic and gestural pattern. However, as remarked in section 2, in the linguistic model there is no direct link between the sensorimotor component and the conceptual one. Hence, if we want to maintain such a restrictive perspective on the theoretical framework, we have to look for a syntactic trigger, as in the previous cases.

A warning can be considered an instance of directive speech act – along with commands, orders, prohibitions, pleas, suggestions etc. By means of a directive the speaker tries to get the hearer to do something (Searle 1975). To put it simply, the main purpose of a directive is to prompt the recipient to take action. There is much debate on the precise definition of directives and whether warnings are classified as such. However, I will not delve into these issues here.<sup>16</sup> As previously mentioned, I will be discussing some experimental findings on a specific type

<sup>15</sup> I thank Lisa Gavioli for collecting experimental data on warnings. That material is still unpublished. Here I will use the data I collected myself in a previous pilot experiment.

<sup>16</sup> Another issue concerns the relationship between warnings and the morphological markers existing in some languages often called *apprehensives* (see for instance Angelo and Schultze-Berndt, (2016). I leave the issue for further research.

of warning, which is conveyed through presentative or copular sentences.<sup>17</sup> A typical context is the following one:

- (15) Context: You and your friend are walking together when you notice that your friend is not paying attention to where he is going and is about to step on a raised surface. You warn him by saying:
- (16) C'è un gradino!  
There is a step!

In the same context, the speaker might have said:

- (17) (Sta') attento!  
lit: stay.IMP attentive  
Watch out!
- (18) (Sta') attento. C'è un gradino!  
Watch out. There is a step!
- (19) (Sta') attento ché c'è un gradino  
Watch out, because there is a step!

The example in (16) is a presentative sentence; the one in (17) is constituted by the verb *sta'*, i.e., the imperative of the verb *stare* (stay), and the adjective *attento* used here in a predicative form, with the masculine singular morphological ending *-o*. Example (18) is a combination of the two, since the imperative is followed by the presentative sentence. Finally, in (19) the copular sentence is introduced by a causal conjunction.

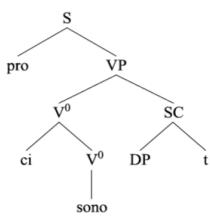
In this discussion, I will consider mainly sentences of the first type, i.e., pure presentative/copular sentences. The interesting observation, as pointed out above, is that they do not contain *per se* any elements identifying them as warnings, even if they are so understood. What makes them warnings is the intonation and the gestures accompanying them.

Let's consider first the syntactic structure of these sentences. Here I will adopt Moro's (2000) analysis. Moro (2000, 109) provides the following structure:

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<sup>17</sup> It is important to note that this experiment is just a pilot study and that a more elaborate experiment has already been conducted and will be presented soon to the scientific community.

(20)



According to this structure, the presentational clause is base-generated as a small clause. Furthermore, (Moro, 2000, 109) “[...] *there*, and its equivalents across languages, is to be analyzed not as a placeholder for the subject but as a placeholder for the predicate”. The expletive is then raised to subject position. In what follows, I will take Moro’s analysis for granted and will not discuss the issue any further. The point is that, as emerges from the representation in (20), the syntax of a presentative sentence does not contain any element explicitly related to a warning. Hence, we must look elsewhere for an explanation.

It has been established since Rizzi’s (1997) research on the left periphery of the clause that there is a syntactic layer on the left of the subject that encodes information related to the context. The components that make up this layer may not necessarily be expressed phonetically. According to Giorgi (2010), this layer contains the speaker’s and addressee’s temporal and spatial coordinates, which are represented in the specifier position of the highest complementizer projection and are indeed silent, but operative in yielding several syntactic and interpretive phenomena. The syntactic position of the verb in the Italian imperative is taken to be a high one, i.e., in the left periphery, as proposed in the recent literature on the topic, as for instance by Alcázar and Saltarelli (2014) and Zanuttini (2008), among others.<sup>18</sup>

My proposal is therefore that directives when realized by means of the imperative, *activate* the left periphery of the clause. According to this view, therefore, warnings such as (*sta’*) *attento* (watch out) or, *attento, c’è un gradino* (watch out, there is a step) crucially involve the presence of a trigger in the left periphery of the clause, i.e., of that syntactic layer where the functions connecting the sentence with the context are represented. However, in the case of presentative sentences like (16), there is no explicit warning call, i.e. no imperative or imperative-like form, that is supposed to activate the left periphery. Hence, if the trigger is present at all, it must be

<sup>18</sup> The issue concerning the relationship of the left periphery with the syntactic representation of the imperative is much more complex issue than highlighted here, especially when considering other cases as well, such as negative imperative and cliticization phenomena. Here I consider only the basic facts.

silent, i.e., without a lexical realization.

#### 4.2 The experimental evidence

The experiment involved a repetition task where the subjects were presented with a context followed by a sentence to be repeated. Additionally, at the end of the test, one of the contexts was presented for a second time and the subjects were asked to repeat *attento* (watch out), as in (17), or *attento+sentence*, as in (18). This was done to compare the realization of the explicit warning with the realization of the simple presentative sentence. The subjects' recordings were analyzed using ELAN and Praat, as for the analysis of special questions. Since it was a pilot, only 4 subjects were involved in the experimentation.

The subjects repeated the sentence using quite consistently the same gestures and intonation. From the point of view of the prosodic characteristics, in most cases, the sentences contained two pitch accents: a first one coinciding with the copula – *c'è* (there is) – and a second one coinciding with the predicate. The end of the sentence is always L.

The non-manual gestures included raised eyebrows, open eyes and forward movement of the upper body (head and/or torso). Manual gestures included pointing with one hand – either open-palm pointing or finger-pointing, or a mixture – in the direction of the dangerous object or situation mentioned in the context. Furthermore, it is possible to see from the recording that raised eyebrows, open eyes and forward movement of the head/torso precede the pointing, and open eyes, raised eyebrows and forward head/torso are kept for the whole sentence.

Let's consider the following cases. The picture in (11), represents the position of the subject at the end of the repetition of the warning *c'è un gradino* (there is a step):



Fig 11

The following one is the complete Praat representation of the same sentence:

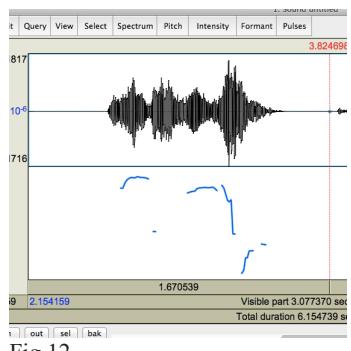


Fig 12

Consider now the intermediate stages. The following picture represents the uttering of the expletive plus copula segment, i.e. *c'è* (there is):



Fig 13

It is possible to see that the first pitch accent is aligned with the non-manual gesture, raised eyebrows.

Consider now the following picture representing the position when uttering the first syllable of the word *gradino* (step):



Fig 14

Here it emerges that the second pitch accent is aligned with the manual gesture.

Concluding from this analysis, it is possible to say that pitch and gestures are aligned and that the pointing is aligned with the content word designating the danger. The syntactic trigger for the first pitch accent and the non-manual gesture must be in the left periphery, i.e., the non-visible part of the representation.

In other words, I propose that there is an imperative-like non-lexical projection in the left periphery, which activates the sensorimotor interface. The data concerning the repetition of the

sentence preceded by the imperative confirm this view. Recall in fact that the subjects were also asked to repeat the phrase *sta' attento* (watch out) by itself, and *sta' attento c'è un gradino* (watch out there is a step). By comparing the different conditions, we can observe that in these cases, the speakers realize the initial pitch accent and the non-manual gesture on *sta' attento* (watch out), therefore anticipating it, with respect to what they do when the simple presentational sentence is provided. Consider for instance the following picture, where the subject is repeating *sta' attento* (watch out):



Fig 15

Comparing the figures (13) and (15), it emerges that they are almost identical. The same can be observed in the Praat representation. The following one corresponds to the sentence *sta' attento c'è un gradino* (watch out there is a step):

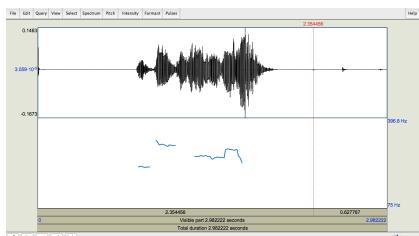


Fig 16

The leftmost portion closely resembles the one represented in the figure (12).

Concluding this section, these data show that syntax, pitch and gestures are aligned in this case as well. If an explicit warning call is realized, pitch and raised eyebrows are aligned with the imperative. When there is no imperative – i.e., no explicit warning call – raised eyebrows and

pitch accent are instead aligned with the copula. Hence, I propose that there is a non-lexical warning call realized on the left of the presentative warning.

The effects observed in these cases are indeed very similar to what I described above for special questions. Hence, coherently with the conclusions drawn there, I suggest that the sequence imperative–copular sentence is a micro-discourse, i.e., consisting of two sentential units connected by a silent discourse head. This particular configuration triggers the correct warning interpretation at the interface with the sensorimotor system and the interpretive one. When the warning is silent, the relevant sensorimotor pattern is moved on the presentative sentence. To exemplify, I provide the following very simplified syntactic representation:

(21) [ Imperative [ H<sub>DIS</sub> [ copular sentence] ] ]

## 5 Concluding remarks

The first, almost trivial, conclusion that can be drawn from the considerations above is that language is multimodal: Gestures accompany quite consistently the vocal production and are not created at random. The cross-cultural study conducted by Petrocchi (2022) shows that there is a surprising similarity even among cultures that are very distant from each other.

The second conclusion is that the phenomena described here, though being *pragmatic* in the sense that they concern the relation of the sentence with context, do not require an independent pragmatic *module*. What is necessary is an *integrated* model of grammar, where syntax, prosody and gesture interact in a principled way. This work demonstrates that the syntactic explanation of complex phenomena can now start to include units beyond a single sentence. Specifically, we can now, tentatively, extend a theoretical formal account to discourse grammar, at least to the simple cases exemplified by micro-discourses.

Note also that these emotional expressions are all root phenomena, in that warnings and surprise or disapproval cannot be embedded, in that they express an emotional state of the speaker and cannot be attributed, maintaining the same syntactic form, to a subject different than the speaker. Hence, they are genuine *pragmatic* phenomena but still are amenable to a formal syntactic account.

Several issues remain open, most notably those concerning the limits of such an operation: What portion of the pragmatic issues can be accounted for by employing an integrated model? Which are the primitives of syntax, in terms of possible categories? To this and several other important questions, I have no answer at the moment and look forward to further research on

the topic.

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