Topic and Focus marking in an Italian corpus:
some results of algorithmic measurement and structural interpretation

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Abstract

One of the main functions of acoustic (intonational and accentual) patterns in linguistic utterances is the expression of Information Structure (IS). We have argued elsewhere [31, 32] that the level of IS most related to acoustic features is the one mainly referred to in the literature as "Theme-Rheme" or "Topic-Focus" (T-F), for which we adopt the definitions proposed by Cresti [13, 14] and Lombardi Vallauri [31, 32], based on which part(s) of the utterance may be regarded as conveying its illocutionary force. We assume that the F is *the part of an utterance that carries illocutionary force and realizes the informational purpose of the utterance itself*. The T, on the contrary, is *the part of an utterance that has no illocutionary force, whose function is to allow the comprehension of the F with respect to the discourse*.

These definitions essentially match those (though not always explicitly expressed) underlying the concepts of T and F (Theme-Rheme, Topic-Comment) usually dealt with in much literature concerned with the acoustic correlates of IS (e.g. [23, 28, 29, 35, 37], and, more relevant in comparison to our analysis, [2, 3, 4, 9, 15, 18, 19, 20, 21], etc.).

Still, the problem of the very nature of acoustic prominences related to such functional categories is still partly open. Our aim is to contribute to improve the understanding of what the acoustic correlates of Topic and Focus prominences are in spoken Italian and possibly other languages. This has been done by means of the automatic treatment (through the use of an automatic prominence detection algorithm) of experimental data from corpora of spoken language, considering mainly three relevant acoustic parameters, namely pitch, intensity and duration.

First, contextual and perceptual evidence about utterances from two corpora of spoken Italian have been used to assess where Topic and Focus constituents were located. Chunks of linguistic material in utterances from the corpora have been labeled as T or F following essentially two criteria:

- First, the subjective impression (mainly based on the perception of acoustic patterns) that a certain part of the utterance conveys illocutionary force, thus being also responsible for the linguistic act carried out by the utterance itself, i.e. for its being an assertion, a question, a request, a command or any other pragmatically relevant act (see [14], for a list of about 80 illocutionary acts).

- Second, the evaluation of the preceding context, aimed at establishing which information may be considered as active [10, 11] at the utterance time, i.e. Given, and consequently less likely to be in F, and which information may be considered inactive, i.e. New, and consequently more likely to be in F.

Then, this has been compared to the automatic measurement of acoustic prominence made by means of the automatic prominence detection algorithm proposed by Tamburini [41,42] mathematical algorithm applied to different acoustic parameters. The comparison has led to the following conclusions, which we briefly sketch here, but will be illustrated thoroughly in the communication:

1. In the considered corpora of spoken Italian, as in many other varieties investigated in the literature, the main acoustic prominence steadily marks constituents located to the right of the utterance, namely the Topic and the Left/Narrow Focus. Right/Broad Focus occasionally but not necessarily receives relevant acoustic prominences.

2. This can be interpreted as for the main prominence to have primarily a demarcative function, i.e. that of marking the boundary between two information units within the utterance. When this function is not required, as with a Broad Focus, acoustic marking is possible but not required.

3. Culminative function, effected by qualitatively different prominences, may be at work to distinguish between a Topic and a Left Focus. Then, of course, Focuses conveying different illocutionary forces are qualitatively marked by different intonational contours [14].

4. It will be shown that, according to this interpretation, listeners can process the IS of spoken Italian utterances through the steps shown in Scheme 1:
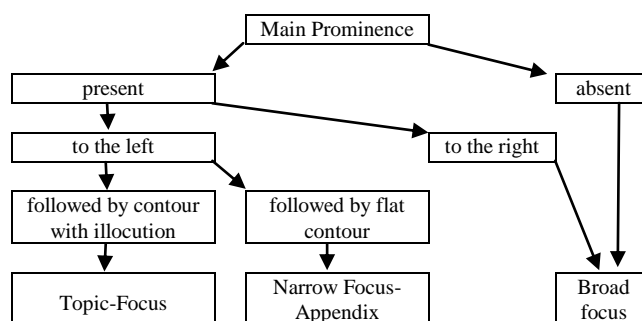
Scheme 1: the path to IS recognition

5. The marking of the boundary between Topic and Focus is not always neatly effected. This can be interpreted as follows: the opposition between Topic-Focus and Broad Focus utterances is not a matter of black & white, rather one of a gray scale: utterances can remain ambiguous as concerns the boundary between the two constructions, or even present intermediate status.

An interpretation of these facts will be proposed, in terms of structural properties of any semiotic system, and linguistic economy. It will also be underlined that such an interpretation, also in that it seems to reflect the deep laws of economy which rule almost all aspects of linguistic systems, may be regarded as probably real for spoken Italian and possibly for other linguistic varieties.

The consistence of these results would contribute to further confirm the effectiveness of Tamburini's algorithm for measuring acoustic prominence.

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