Prosodic Markings of Information Focus in French

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Our aim is to characterize the prosodic realization of the XP contributing the Information Focus (IF) in French. We define IF as that part of the content in answers which resolves questions. We distinguish between All Focus answers (1a) and Narrow Focus ones (1b) (a. o. Lambrecht 1994). In (1a), IF is contributed by the whole sentence; in (1b), it is contributed by the Object NP.

(1) a. What happened? [Jean invited Marie to the party yesterday night]
   b. Who did Jean invite? Jean invited [Marie] to the party yesterday night

Here, we report the results of three experiments. The first one is a production experiment, showing that Narrow Focus marking relies on two distinct prosodic means: nuclear contour placement and prosodic highlighting. The two other experiments are perception experiments devised to study the marking of Narrow Focus more precisely. We will discuss our results in the light of recent proposals for IF marking in French.

Our notion of nuclear contour (NC) is borrowed from Di Cristo 1999. In an autosegmental-metrical framework, it can be analyzed as the nuclear pitch accent (assuming Post’s inventory of nuclear pitch accents; see also Beyssade et al. 2004). Prosodic highlighting (PH) corresponds to what Di Cristo 1999 and Rossi 1999 call focalisation prosodique. It involves initial accentuation, where the initial accent (IA) may form an accentual arc with the following rising accent, or triggers a high plateau up to the following accent. The IA or the high plateau are generally implemented quite high in the pitch range (see Fig. 4 and 5) with correlative contraction of the pitch range for the preceding constituent (compare with Fig. 6 and 7).

1. Experiment I: IF marking in sentence production

1.1 Methods and general results

Set-up. Participants were presented with question-answer pairs embedded in short contexts such as (2).

(2) Context [translated]: Richard is a policeman. He has to treat various documents (films, leaflets, K7s) seized in a terrorist cache.

(3) a. Le responsable : Qu’as-tu visionné la nuit dernière? What did you screen last night?
   Richard : J’ai visionné les vidéos la nuit dernière. I screened the videos last night
   b. Le responsable : Où en es-tu dans ton enquête? What’s up with your investigation?
   Richard : J’ai visionné les vidéos la nuit dernière. I screened the videos last night

The contexts and the questions were presented visually as well as auditorily. The participants’ task was to read aloud the answer as if they were actually participating in the dialogue. We presented two types of questions to 14 subjects: partial questions (bearing on the Object) (3a) and broad questions (bearing on the whole sentence) (3b). We recorded 112 answers. We analyze 107 of them here. 5 sentences were not analyzable because of disfluencies, production errors etc.

Results. Results are given in Fig. 1 (a,b). 60 % of the answers to partial questions involve the placement of NC on the right edge of the Object, the majority of these, 49 % in total, involve the placement of NC on the right edge of the Object and its prosodic highlighting. In 23.6 % of the cases, we only find prosodic highlighting of the Object and NC on the right edge of the utterance. As for answers to broad questions, 69.2% of answers involve the placement of NC
on the right edge of the utterance; 30.8% NC on the Object. We will describe prosodic marking for the two types of responses in more detail below.

1.2 NF marking. NF answers feature three patterns using two types of prosodic means: NC placement and prosodic highlighting.

\[ (4) \]
\begin{enumerate}
  \item a. NC on NP + PH: the focus constituent hosts the NC and is prosodically highlighted (Fig. 4).
  \item b. PH on NP: the focus constituent is prosodically highlighted and the NC is placed at the end of the utterance (Fig. 5).
  \item c. NC on NP: the right edge of the focused constituent hosts the NC (Fig. 6).
\end{enumerate}

In pattern (4a), the Object NPs attract the NC and are prosodically highlighted, which is the most frequent pattern in the corpus elicited in Experiment I (49%). Pattern (4a) conjoins the two IF markings which are separately used in the patterns (4b) and (4c). In pattern (4b), the Object NPs do not attract the NC (the NC is placed at the end of the utterance), but are highlighted. Pattern (4b) is well represented in the corpus (23.6%). In pattern (4c), the Object NPs attract the NC and they are not highlighted. The XPs to the right show up with the appendix realization that is typical of postnuclear phrases (deaccenting). This is the least attested strategy in the corpus (11%). Among the 16.4% of the answers described as featuring the NC at the end of the utterance, 9% feature highlighting of the verb or of the cluster ‘Verb + NP’ and only 7% feature no highlighting at all.

The first pattern (4a) corresponds to what Di Cristo 1999 calls bilateral marking of Focus: the left and right edge of the focused XP are accented. Pattern (4c) is reputed to be the primary way of marking IF in Beyssade et al. 2004 (generalizing Di Cristo 1999). As for pattern (4b), which solely relies on PH, it has not been documented in the literature as a way of marking Informational Focus so far. In order to investigate the respective role of left and right edge marking of the focused NP, we decided to focus on pattern (4c) and (4b) in order to verify their role in IF marking in two perception experiments (Exps. II and III).

1.3 AF marking. In our production corpus, 69.2% of answers to broad questions feature the NC on the right edge of utterances. Fig. 7 illustrates the most frequent realization. It corresponds to the marking of All Focus utterances as claimed in Beyssade et al. 2004 and Di Cristo 1999. It allows the generalization in (7):

\[ (7) \]
\begin{enumerate}
  \item a. All Focus marking is identical to Narrow Focus marking when it comes to nuclear contour placement: the right edge of the XP contributing the Focus hosts the nuclear contour.
  \item b. Focus marking by means of Prosodic Highlighting is available only with Narrow Focus.
\end{enumerate}

As is observed in Fig 1b, 30.8% of the answers to broad questions do feature the NC on the right edge of Object NPs, which is the pattern expected for narrow focus on the Object. We claim that this corresponds to a discrepancy between the IF called for by the question and the actual IF in the answer as it is perceived by the speaker. Such discrepancies are common in ordinary dialogues: it has been observed that speakers often reply to broad questions by answering to a partial question derived from the original broad question (Roberts 1996, Büring 2003).

2. Experiment II and III: Perception of NC and PH

2.1. Experiment II. We ran a perception experiment in order to test whether the two ways of marking Narrow IF (NC placement or PH) are perceived as such by naïve participants.

Set-up. We selected 20 sentences from the preceding corpus: 10 realizations with NC at the end of the sentence, 10 with marking of the Object (5 with NC and 5 with PH). The sentences were presented in two blocks. The first is composed of 5 answers with NC at the end and 5 with PH on NP and NC at the end. The second is composed of 5 answers with NC at the end and 5 with NC on NP. The 24 participants, all native speakers of French, had to listen to the selected items and to judge to which of two visually presented questions the current sentence had been produced as an answer (5).

(5) Questions: 1. Pour finir qu’est-ce que tu as élargi?  Finally, what have you let out?
2. Results. Figure 2 shows how often participants chose partial questions. Participants clearly distinguished between answers with nuclear contour at the end (Final NC) and answers with highlighted NPs (PH on NP) in block 1, as well as between answers with nuclear contour at the end (Final NC) and answers with nuclear contour at the end of NP (NC on NP) in block 2. They chose the partial question reliably more often for answers with PH on NP than for answers with final NC (69 % vs. 40 %; $F_{1,24}=19.54; p < 0.001$). They also chose the partial question reliably more often for answers with NC on NP (57 %) than for answers with final NC (25%, $F_{1,24}=23.93; p < 0.001$). No reliable difference between answers with PH on NP and those with NC on NP could be established.

Conclusion. Utterances with NC on the Object NPs or highlighted Object NPs are recognized as answers to partial questions bearing on the Object. Accordingly, we conclude that Narrow Focus can be brought out either by NC placement or by prosodic highlighting.

2.2. Experiment III. In our production corpus, 72.6 % (49 % + 23.6 %) of the answers to partial questions feature PH independently of the placement of the NC. PH has been correlated either to Saliency in a prosodic domain or to Contrast (e.g. Rossi 1999), understanding contrast as membership of a set of alternatives. We ran a third experiment in order to test whether PH is linked to the presence of a set of alternatives in the context.

Setup. The only difference between experiment II and III is that we added a sentence presenting a set of alternatives. Otherwise the procedure was identical. For example, context (6) has been added to (5).

(6) Pierre ne rentre plus dans son costume : le gilet et la veste sont trop serrés. Comme il est tailleur, il va faire les retouches. *His suit does not fit Pierre any longer: the vest and jacket are too tight. As he is a tailor, he will alter them.*

Results: Figure 3 shows the percentage of choices of partial questions. The pattern is nearly identical to that of Experiment II. The 17 participants (different from those involved in experiment II) chose the partial question reliably more often for answers with PH on NP (67 %) than for answers with final NC (67 % vs. 40 %; $F_{1,17}=8.86, p < 0.01$). They also chose the partial question reliably more often for answers with NC on NP than for answers with final NC (58 % vs. 28%, $F_{1,17}=5.12, p < 0.04$). No reliable difference between answers with PH on NP and those with NC on NP could be established.

Conclusion. The presence of alternatives in the immediate context does not influence the choice of IF marking. This is a first clue that PH is not specifically linked to the reference to a set of alternatives. Conversely, it is a cue to analyze PH as a means to set off XPs in a prosodic domain. Such a conclusion rejoins Di Cristo’s analysis of initial accentuation: it is compatible with Contrast marking without requiring it by any means.

3. General conclusion. IF marking in English is generally considered as uniform as it involves a single mark: the nuclear rise. This is apparently not the case in French (pace Jun & Fougeron 2000). French uses two distinct prosodic strategies to mark IF: the placement of NC and/or prosodic highlighting. Thus, our results converge with those of Fery 2001 who stresses the tonal diversity of French IF marking. Indeed, the right edge of narrow IF may host any contour belonging to the repertory of pre-nuclear (in PH) or nuclear contours; the right edge of all focus utterances may host any contour belonging to the list of nuclear contours. But, contrary to Fery’s analysis that implies that the sole regularity in IF marking is phrasing, we stress that the diversity boils down to only two strategies: the first of which, which is common to narrow and all focus, relies on the localization of NC (and the correlative appendix realization of XPs to the right) and the second of which (only possible for narrow focus) relies on prosodic means that bring out prosodic distinctiveness and crucially involves initial
accentuation.

Selected references.