

## THE PROSODIC STRUCTURE OF LEFT-DETACHED PHRASES IN FRENCH INTERROGATIVE UTTERANCES

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### ABSTRACT

Previous studies have shown that statements and questions in French differ in the iterative pre-nuclear pitch patterns: statements being generally characterised by a sequence of (downdrifting) rising patterns and questions by a sequence of downstepped pitches. This study examines the patterns on left-detached phrases before statements and questions. Their tonal patterns appear intermediate between that of statements and questions irrespective of the modality of the following construction.

### INTRODUCTION

In French as in many languages there are a number of different ways of asking questions. Yes-no questions, for example, can be syntactically marked by postposing a subject pronoun (but not a full noun phrase) after the verb: "*As-tu la clef?*" (Have you got the key), or by use of the expression "*est-ce que*": "*Est-ce que tu as la clef?*". Yes/No questions can also be syntactically unmarked: "*Tu as la clef?*".

Prosodically, although questions can be produced with either a final rising or a falling pattern, a common characteristic of different question intonation patterns in French seems to be the use of a recurrent downstepping pattern which can be observed on both Yes-No questions and Wh-questions as well as on other interrogative patterns such as alternative questions ("*Tu as la clef ou tu l'as pas?*" (Have you got the key or haven't you?)), tag questions ("*Tu as la clef, non?*" (You've got the key, haven't you?) and elliptical questions ("*Et la clef?*" (What about the key?)) [1, 2].

This recurrent downstepping pattern found on questions in French contrasts with the recurrent rising pitch pattern (with downdrift) found on non-final accented syllables in declaratives.

In this presentation we examine the case of a more complex structure in French: that of left-detached phrases. This construction, which is extremely frequent in colloquial French, consists in extracting either the subject or the object of a verb and replacing it with a clitic pronoun as in: "*La clef, elle est sur le bureau.*" (The key, it is on the desk.) "*La clef, tu l'as trouvée?*" (The key, have you found it?). The phenomenon of detachment can be interpreted pragmatically as a form of topicalisation. Since the detached sequences are liable to appear both in declaratives and questions, we wanted to see whether the opposition mentioned earlier between the recurrent downstepping pattern and the recurrent rising pitch pattern would also apply to detached sequences.

### METHOD

Most of the examples of left-detached sequences in our corpus of spontaneous speech were too short (one or two accent groups) for us to examine the pre-nuclear iterative pattern which only appears on sequences containing at least three accent groups. We consequently decided to test this feature on a simulated dialogue.

### Corpus

We selected 6 noun phrases from an written dialogue which was read aloud by 10 native French speakers. The reading of one speaker was rejected for lack of naturalness. The dialogue contained 6 noun phrases which were structurally identical: consisting of an embedded NP of the type

[ N [ Prep + N [ Prep + N ] ] ]

They also had the same lexical content, and hence the same segmental structure. The final word varied (Paris / Roissy / Madrid) but in each case the final vowel was [ i ].

The three phrases were:  
*les horaires des départs vers Paris*

*les horaires des départs vers Roissy*  
*les horaires des départs vers Madrid*  
 (the schedule for the flight to Paris/Roissy/Madrid)

The sequences differed in syntactic structure and modality:

Three of the phrases were part of interrogative utterances:

a) Final Question (QF): independant interrogative noun-phrase.

*les horaires des départs vers Paris?*

b) Detached Question (QD): left-detached phrase before an interrogative construction.

*mais les horaires des départs vers Paris, vous pouvez me les donner?*

[ but ..., can you give it to me ? ]

c) Non final Question (QN): This construction - frequent in spoken conversational French - is similar to the "detached question" (b), but in this case only the detached part is expressed, giving the construction an elliptical nature.

*et alors pour les horaires des départs vers Madrid?...*

[ so what about...? ]

The other three phrases were part of declarative utterances:

a) Final Declarative (DF): declarative phrase ending a turn.

*Je voudrais connaître les horaires des départs vers Madrid.*

[ I'd like to know... ]

b) Detached Declarative (DD): left-detached phrase before a declarative construction.

*Les horaires des départs vers Madrid, on vous les donnera si (...).*

[ ..., it will be given to you if... ]

c) Non-Final Declarative (DN).

*Je voudrais les horaires des départs vers Paris, mais (...)*

[ I'd like ... but (...). ]

All of the sequences share the rhythmic property of constituting a single Intonation Unit comprising three Tonal

Units (or accent groups) of three syllables each:

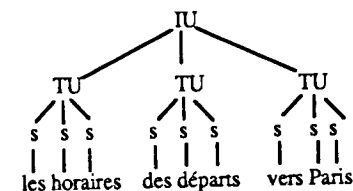


Figure 1: prosodic structure for the noun phrases used in the analysis.

The utterances were digitalised and Fundamental Frequency was modelled as a sequence of target-points defining a quadratic spline-function using an automatic f0 modelling program MOMEL [3]. For the first two tonal units, two targets were sufficient; for the last TU, three f0 targets were often necessary. Thus, each sequence was reduced to 7 f0 values for the study. The Hz values were then converted to the ERB scale [4], in order to allow comparisons across speakers.

### RESULTS

The only factor which significantly distinguished all three types of questions from all three types of declaratives was the value of the initial f0 peak which was systematically higher for questions than for the corresponding statements ( $p < 0.02$ ).

For the two turn-final patterns QF and DF, the f0 patterns produced by the 9 speakers were very consistent. The two patterns were distinguished systematically both by the value of the final target point and by the drop between the non final accented syllables and the following syllable which was much greater for the declarative pattern than for the interrogative as can be seen in Figure 2 illustrating the mean values for the two patterns over the 9 speakers.

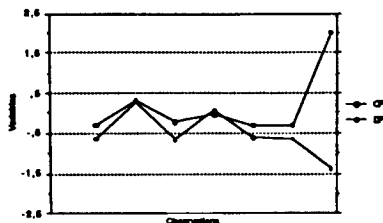


Figure 2 : mean values in ERBs for the target points for turn final question (QF) and statement (DF).

The distinction between a downdrifting pattern for declaratives and a downstepping pattern for interrogatives [5, 1] seems to be a fairly robust characteristic of questions as can be seen from the pattern of non-final utterances illustrated in Figure 3 where this characteristic is the only one which distinguishes the two patterns significantly.

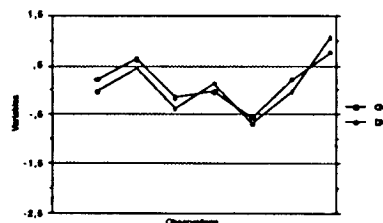


Figure 3 : mean values in ERBs for the target points for non-final question (QN) and statement (DN).

Left-detached phrases seem however to behave rather differently from other phrases in French. As can be seen from Figure 4 the mean values of the question and statement patterns do not seem to differ on this feature : on the contrary both seem to be somewhat intermediate between the patterns observed on final or non-final questions and statements.

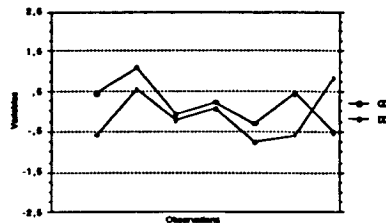


Figure 4 : mean values in ERBs for the target points for detached question (QD) and statement (DD).

### DISCUSSION

First of all, our data confirms some previous observations about prosodic differences between declaratives and questions in French [2].

We can note a tendency for final questions (QF) and elliptical questions (QN) to be produced with an iterative downstep, and for declarative utterances - both final and continuative - to have a downdrifting contour (where L and H tones alternate).

However, if we consider the mean values drawn from of our corpus, the detached sequences (QD, DD) seem to differ from both downdrifting and downstepping contours. Their intonation pattern - intermediate between those two patterns - would be better described as a "reduced" downdrift contour : the second TU does show a tendency towards tonal alternation between H and L tones, but these are of significantly smaller amplitude than that observed on declaratives. In addition, the fact that the detached sequence was followed by a declarative or interrogative construction seemed to play no part in determining the nature of the reduced downdrift. Thus we can hypothesise that the phonological opposition between the downdrift and the downstep - semantically linked to the distinction between assertion and question - is neutralised in detached sequences. A semantic explanation for this neutralisation of modality would be beyond the scope of this study : we can however note that a major characteristic of topicalised detached phrases seems to be that they remain outside the scope of the modal marks carried by the verbs. For example, it is obvious that answering

"non" to a question like "Les clés, elles sont sur la table ?" [the keys, are they on the table ?] would not negate the existence of the keys, but only their being on the table [6].

As for the pattern of the last Tonal Unit, detached questions were characterised by greater variability than the other patterns. By contrast with the Detached Declarative sequences, which all show a globally rising contour on their last TU, the last segment of the Detached Question was produced as a flat or falling contour most of the time, but as a rising contour by two speakers. However, DD and QD sequences appear globally to clearly differ regarding their last TU. In particular the QD sequence finished with a tonal value which can be interpreted as downstepped.

It remains to be seen whether the tonal characteristics which we have observed on questions, statements and detached phrases are perceptually relevant cues for the identification of sentence modality.

### References

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