



Research Article

Earlier or Higher? Comparing French rising-falling contour with rising contour in a corpus of conversation

Cristel Portes ^{a,*}, Leonardo Lancia ^b^a Aix-Marseille Université, CNRS, LPL, UMR 7309, 5 Avenue Pasteur, BP 80975 – 13604 Aix-en-Provence, France^b Laboratoire de Phonétique et Phonologie (UMR7018, CNRS-Sorbonne Nouvelle), 19 rue des Bernardins, 75005 Paris, France

ARTICLE INFO

Article history:

Received 29 January 2016

Received in revised form 27 March 2017

Accepted 3 April 2017

Available online 2 May 2017

Keywords:

Intonation

Intonational meaning

Alignment

Scaling

Corpus analysis

French

Wavelet-based functional mixed models

ABSTRACT

In French intonation, a rising-falling contour (RF) has been described by many authors, but the characteristics of its phonetic realization as well as its phonological status remain controversial. Is its f₀ movement temporally aligned earlier compared to the f₀ movement of the simple rise (R)? Or is it scaled higher in the speaker's pitch range? Does it convey conviction and obviousness while the simple rise rather announces that the speaker has more to say? Firstly, the present study compared the phonetic implementation of RF and R in a corpus of naturally occurring conversation. Through the application of a wavelet-based functional mixed model, we could detect significant differences between the shapes of the f₀ curves corresponding to RF and R contours. Results show that RF and R mainly differ with respect to the timing of the rise and the amplitude of the falling part. They thus support the claim that these characteristics are more important than the scaling of the pitch peak for the implementation of the contrast between RF and R. Secondly, the results of a forced choice identification task performed by naïve listeners show that they consistently associate the RF contour with the expression of conviction and obviousness and the R contour with the indication that the speaker has more to say.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

The study of intonational contours (or *tunes*) is at the core of intonational phonology. A large body of studies is hence devoted to, or at least includes, the inventory of phonological contours in a given language or in a family of languages (see Hirst & Di Cristo, 1998 or Jun, 2005 for typological surveys). Most of these studies are based on the impressionistic observation of selected examples from corpora of spontaneous speech and/or on quantitative analyses of productions elicited in laboratory conditions, but very few rely on a quantitative investigation of naturally occurring corpus data. With the arrival of new tools, the trend in linguistics has turned to exploring larger corpora (Bresnan, 2007; Cole & Hasegawa-Johnson, 2012; Coleman, Liberman, Kochanski, Burnard, & Yuan, 2011; Jun & Fletcher, 2014; Schafer, Speer, & Warren, 2005). Such an approach provides us with access to linguistic phenomena in their ecological context, and allows a better understanding of the full range of variation in speaker behavior.

In French, one of the intonational contours that can benefit greatly from a corpus quantitative investigation is a rising-falling contour, first described by Delattre (1966) who called it an “intonation d’implication” (implicative intonation). As a matter of fact, its phonetic description and phonological characterization remain controversial in French intonational literature. Specifically, the fact that it contrasts with the rising contour has been said to rely mainly on an earlier temporal alignment of the rising part of the contour (Post, 2000), or mainly on a higher implementation of the pitch peak in the fundamental frequency range (Di Cristo & Hirst, 1996; Rossi, 1999). The aim of the present study was therefore to examine the precise phonetic implementation of this French rising-falling contour (henceforth RF) in a corpus of natural conversation, while comparing it with the rising contour (henceforth R). We pursued our aim in three steps. First, we asked two French phoneticians to identify the instances of RF and R contours in a radio conversation involving five male speakers. Second, we modelled the difference between the two contours via a wavelet-based functional mixed model (Morris & Carroll, 2006). This technique allowed us to estimate the difference between shapes of f₀ trajectories in a mixed model framework, and therefore to

* Corresponding author. Fax: +33 4 13 55 37 44.

E-mail addresses: cristel.portes@lpl-aix.fr (C. Portes), leonardo.lancia@univ-paris3.fr (L. Lancia).

implement a complex random effect structure, as required by the unbalanced nature of corpus data. Third, we validated the classification of the two expert listeners with that of 34 naïve French listeners involved in a forced choice identification experiment.

In the remainder of this introduction, we will review the description of the rising-falling contour in the literature on French intonation (Section 1.1), give some background about alignment and scaling of tonal targets (Section 1.2), and formulate the aims of the study (Section 1.3). In Section 2, we describe our corpus study. And in Section 3, we report the methods and results of the follow-up perception experiment. Section 4 consists in a general discussion, while Section 5 presents concluding remarks.

1.1. The rising-falling contour in French intonation

The rising-falling contour under study here is part of the inventory of the nuclear contours (or intonational phrase final contours) of the French intonation system. The matrix of RF is Delattre's "contour d'implication" (Delattre, 1966) schematized in Fig. 1 below, borrowed from the author. Delattre conceived the contour as a rising-falling one, rising through the penultimate syllable, with the f_0 peak occurring on the final (primary accented) syllable and then falling slightly on that same syllable.

According to Delattre, the meaning of the contour links the meaning of the actual utterance to some implicit content which is quite underspecified and can be inferred by the context and may convey different pragmatic attitudes such as obviousness, exasperation or on the contrary politeness.

Although most alternative accounts of French intonation have mentioned a rising-falling contour, its status and description is as yet far from consensual. The main points of discussion, discordance and ambiguity addressed in the present study are the role of f_0 temporal alignment, the role of f_0 height and the role of the f_0 level reached by the fall in the speaker's range as cues to distinguish RF from the simple rise R. An additional ambiguity concerns the contrast of RF with another rising-falling contour in which the f_0 peak is aligned with the penultimate syllable. Post (2000) encoded the phonological difference between the two contours using a pitch accent contrast, namely H^* in the $LH^*L\%$ tune for the RF under study here and $H + H^*$ in the $LH + H^*\%$ tune for the penultimate peak contour. Martin (1999) also proposed to distinguish two rising-falling contours ("contours à courbe en cloche" *bell curve contours*) which share the feature "+ circonflexe" (+ *circumflex*) but differ concerning the feature +/- rising (Martin, 1999). However, other authors did not mention this contrast, for instance, Vaissière (1980) only mentioned one rising-falling contour called a "contour à pic" (*peak contour*). As for Mertens (2008), he actually proposed a contrast between two rising-falling contours HB and HB- ("H" for High and "B" for Bottom), but they differ concerning the level at the bottom of the speaker's range which is higher in HB and lower in HB-. Unfortunately, we were not able to analyze the contrast between RF and the penultimate peak contour in the present study due to the lack of relevant data (see Section 2 below).

There are a number of controversial elements to be taken into account, beginning with Post's (1999) study of the contrast

between RF and R. In order to explore a three-way phonological contrast between $LH^*L\%$ (RF), $LH^*H\%$ (R) and $LH^*0\%$ (a variant of R rising to mid versus to high), Post (1999) conducted a categorical perception experiment (discrimination and identification tasks) on a continuum between RF and R (Fig. 2).

As shown in Fig. 2, in Post's proposal, the alignment of both the leading L and the H^* targets are delayed from RF to R; on the other hand, the fall of the RF contour becomes shorter and reaches higher final f_0 values when moving from step 1 to step 10 of the continuum, to disappear at step 10 corresponding to the R contour; finally, the height of the f_0 peak remains constant in all steps of the continuum. In Post's 1999 categorical perception study, this continuum was used to test the validity of the experimental procedure, as the contrast between RF and R was presented as uncontroversial. However, the results of the identification task did not support a categorical perception of the RF and R contours. The results could "be interpreted to indicate that the differences were perceived continuously" (Post, 1999, p. 968). This result may be due to the fact that RF is a variant of R. However, this explanation is not in line with a general claim in the literature that the two contours have a different meaning: RF is known to convey an epistemic meaning (Delais-Roussarie et al., 2015; Portes & Reyle, 2014; Sichel-Bazin, 2015) while R conveys continuation or a polar question. One of the aims of the present study is to verify the validity of this form-meaning association and to test whether it is only a broad preference between two possible pragmatic functions or a stronger phonological contour/meaning relation. Another explanation may be that the stylized representation of the contours used in the task, does not control for the relevant cues or at least not for all of them.

As a matter of fact, many authors mentioned emphasis as a property of the rising-falling contour. In the second edition of his book *Intonational Phonology*, Ladd described Delattre's "intonation d'implication" as "matrix sentences ending with an emphatic or exclamatory high peak" (Ladd, 2008, p. 121). Rossi (1981, 1999) conceived the rising-falling contour as the result of a clustering between one of his *intonational morphemes* ("intonèmes") called *major conclusion* ("conclusive majeure") and a special feature called "expressème", whose role was to add expressivity to the meaning of a falling declarative or interrogative contour by raising it up in the speaker range. The same idea was developed by Di Cristo and Hirst (1996) who distinguished between two rising-falling contours on the basis of the height reached by the f_0 peak: *the contrastive emphasis* ("l'emphase contrastive") with a very high peak and *the marked assertive variant* ("la variante assertive marquée") with a normal high peak. In the latter approaches it was hence made explicit that the height of the contour was responsible for its emphatic/expressive function.

As we have already mentioned above, a further distinction was proposed by Mertens (2008) who contrasted two rising-falling contours, HB and HB-, on the basis of the lower f_0 values reached at the end of HB-¹. Both contours were said to be used to mark focus, or at least attention centers, and to convey speaker commitment. The functional difference concerned the

¹ This is in line with Post's (1999) hypothesis of a distinction between $LH^*0\%$ (corresponding to HB) and $LH^*L\%$ (corresponding to HB-).

Download English Version:

<https://daneshyari.com/en/article/5124068>

Download Persian Version:

<https://daneshyari.com/article/5124068>

[Daneshyari.com](https://daneshyari.com)