

# THE INTONATION OF RIGHT-DISLOCATED CONSTITUENTS IN FRENCH

David Le Gac

Normandie Univ, France ; Laboratoire DySoLa, F-76000 Rouen  
david.legac@univ-rouen.fr

## ABSTRACT

In French, the intonation of post-focus items is not clearly determined. Traditional descriptions claim that post-focus intonation entirely depends on that of the focus *via* a process of tonal copy; other accounts argue for either autonomous patterns or a binary independent choice between a high and a low tone.

To clarify this issue, this paper investigates the melodic patterns of right-dislocated constituents after eight different contours associated with the focus. Results confirm that post-focus phrases are characterized by an iterative and reduced copy of the focal tones; it is also shown that a mid or downstepped high tone is needed to describe intonation in French and that we must posit contours that constitute single complex units.

**Keywords:** right-dislocation, post-focus, intonation, tonal dependency, French.

## 1. INTRODUCTION

Everyday spoken French commonly uses the syntactic device of right dislocation, which consists of one or more postposed phrases, which immediately follow the focused part of the sentence and may be replaced by pronouns within the main clause. From a pragmatic point of view, right-dislocated constituents (henceforth ‘RDCs’) are claimed to be highly accessible and, as such, to function in recovering entities, which are situationally or textually evoked (cf. [18, 19, 34]).

Since Delattre [5], it is generally admitted that RDCs and post-focused phrases are characterized by the so-called ‘parenthetic’ contours, whose intonation pattern depends on the type of the sentence. In declarative sentences, the parenthetic contour is realized as a low and flat or declining pitch pattern (‘low parenthesis’), whereas, in yes-no questions, it is pronounced either with a flat, slightly declining pitch in a high or high-mid register (‘high parenthesis’) or with a reduced question pattern (cf. [7, 29]).

[5] and many authors after him (cf. [3, 4, 7, 17, 20, 21, 29]) consider that the parenthetic contours are actually two ‘allotones’ in complementary distribution conditioned by the form of the preceding intonation pattern. For these authors, the intonation of the post-focus or RDC results from the *copy* of all or

part of the preceding contour intonation features (cf. [12] for a similar process in Dutch). In addition, it is usually agreed by authors regarding the metric and autosegmental framework that the post-focus elements are deaccented, though not dephrased. They have no pitch accents but the phrase final syllables remain lengthened (cf. [8, 11, 16]).

However, the parenthesis pitch dependency on the preceding contour is formulated in almost all studies through the observation of one or two sentence intonation types only, namely declarative sentences and yes-no questions. It is, thus, likely that the low or high parenthesis does not result from any tone copy but merely from a phonological choice according to the sentence type.

As a matter of fact, in [16]’s model, there is no copy rule. The low or high parenthesis arises from the independent selection and the spreading of an L- or H- tone, associated to the intermediate phrase, followed by an L% or H% boundary tone. [25] also provides only two types of parenthesis that seem to solely depend on the modality of the utterance and not on the melodic shape of the ‘final accent’ (e.g., the parenthesis is low after the H+H+ final accent expressing the speaker’s involvement). [6] claims that RDCs form prosodic independent pieces and have their own intonation (cf. ‘[...] *the second piece* [i.e. the RDC] *receives its own motif: MH after MHm, and M after LMH+.*’ Dell [6] p. 69).

Few other scholars have investigated the melodic pattern of post-focus items after more than one or two types of intonation patterns. Thus, [3] argue that an HM% contour adding a nuance of incredulity in a question is duplicated in the post-focal phrase. [17] analyzes the intonational cliché he calls ‘suspended fall contour’ as an LH!H\* sequence and claims that the final !H\* is copied on the subsequent RDC. Nevertheless, these authors do not base their proposal on experimentally controlled data, and alternative analyses may legitimately be put forward. For instance, the mid tone in [3]’s HM% contour is not obvious, and this contour may arguably be analyzed as a free variant of the question intonation. As for [17]’s LH!H\* suspended fall followed by a copy of !H, it is interpreted by [16] as an H\*H-L% tune with a unique phrasal H- followed by an upstepped L%.

Moreover, there is an alternative analysis to account for the low or high plateau found in RDCs or post-focus items; in the spirit of [13] and [14], this

could be explained by spreading an utterance final boundary L% or H% tone *leftward* from the end of the sentence up to the focus.

In sum, in spite of a long tradition followed by many scholars, RDC intonational dependency on the focus is actually not clear; RDC melodic patterns may be due to the independent selection of phrasal or boundary tones and not to a tone copy rule. Studying RDCs is of great interest in understanding and modeling French intonation. It will help us to determine what type of phonological prosodic structure has to be posited to adequately describe the intonation of French sentences. In addition, it will shed light on the intonational features occurring on the focus. For instance, do we have to use complex boundary tones (cf. [3, 13, 14]) or pitch accents ([24, 25]) to describe French intonation? Is there any downstep feature (cf. [17]) or even an upstep one?

## 2. METHODOLOGY

In order to answer to these questions, one needs to investigate RDCs preceded by a wide range of focal intonation contours. It is also necessary to examine sentences with more than one RDC; this is the only way to verify whether a RDC may be realized with an iterative copy of a downstepped or upstepped tone, and, consequently, to determine the origin and direction of the duplicated tones.

We used the target sentence ('TS') given in (1). This sentence comprises a matrix clause (*Elle vient en avion*), where *en avion* is the focus, followed by two RDCs (*vendredi* and *Mélanie*). To have different intonation patterns at the end of the matrix clause and to test the tonal copy hypothesis, this TS was embedded in different contexts in the form of pseudo-dialogues accompanied by textual descriptions and comments. Table 1 gives these contexts and the six pseudo-dialogues we used.

We, thus, investigated eight TSs expressing the following meanings: 1) *yes-no information-seeking questions* (QUERY), where the information sought is unknown by the speaker; 2) *confirmation* (CONF); 3) *information focus* (FOC); 4) *surprise* (SURPR), the answer to the question is unexpected though possible; 5) *incredulity* (INCREDED), the answer is supposed to be impossible; 6) *confirmation-seeking question* (CHECK) with a bias towards a positive answer (cf. [30]); 7) *objection* (OBJECT), the speaker is showing disbelief and challenging the interlocutor's answer (cf. [6, 30]) and 8) *evidence* (EVID), the information is presented as taken for granted (cf. [6]).

These dialogues with their context were written on paper cards and mixed with dialogues and utterances designed for other experiments. This material was presented to four speakers of standard French, two

female and two male, in their thirties or forties (FS1/2 and MS1/2)<sup>1</sup>. Their task was to read aloud the dialogues (not the context) five times as naturally as possible without any particular expressiveness. Before the recording, the participants carefully read the dialogues and were allowed to ask the experimenter for further clarifications to interpret and realize the TSs appropriately. The recordings took place in a quiet room and were done using the computer's sound card (44 kHz, 16 bits) directly.

### (1) TARGET SENTENCE:

*Elle vient en avion, vendredi, Mélanie*  
she comes by plane Friday Mélanie

**Table 1:** the six pseudo-dialogues used

<b>General context</b>	You are staying with family for holidays. Your sister, Mélanie, is coming on Friday.
<b>Dial. 1</b>	She lives in Marseilles. You'd like to know whether she will take the plane as usual; you ask: QUERY <i>Au fait</i> ('By the way'), <u>TARGET SENTENCE?</u> Your father answers: CONF <i>Oui, oui</i> ('Yes, yes'), <u>TARGET S.</u>
<b>Dial. 2</b>	You're asking your father how your sister will come: 'By the way, how is she coming, Friday, Mélanie?' FOC Your father is answering: <u>TARGET S.</u> 'Could you pick her up at the airport?' SURPR You are surprised because she does not live so far. <u>TARGET S.</u>
<b>Dial. 3</b>	Your father is asking you: 'M. will take the plane on Friday. Could you pick her up at the airport?' INCREDED You don't believe it because your sister is very afraid of planes, she never takes them: 'What?!' <u>TARGET S.?!</u> 'It's not possible!'
<b>Dial. 4</b>	You're not sure your sister will take the plane and not the train; you want to make sure of that to pick her up at the airport. You're asking: CHECK <u>TARGET S.</u> 'Not by train? That's right?'
<b>Dial. 5</b>	Your father informs you that Mélanie will arrive by plane. You are skeptical because your sister had announced she would take the train. You ask: OBJECT 'What are you talking about?' <u>TARGET S.?</u>
<b>Dial. 6</b>	Everybody knows your sister will take a plane as usual. However, you ask how your sister is coming. EVID Your father answers you: 'You know very well', <u>TARGET S.</u>

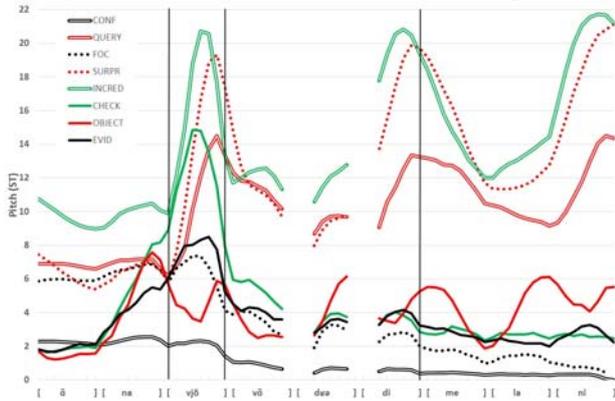
The acoustic analyses of fundamental frequency (F0) were done using the Praat software [2]. To compare the melodic realizations of the speakers and the various TSs, we converted the original F0 values in Hertz into semi-tones ('ST') by taking the F0 minimum of each speaker as the reference value, which was usually realized in the final syllable of the CONF or FOC utterances. Moreover, in the vein of [32, 33], we also generated time-normalized melodic curves using the syllable as the domain of normalization and a 10-point time resolution per syllable.

### 3. RESULTS AND DISCUSSION

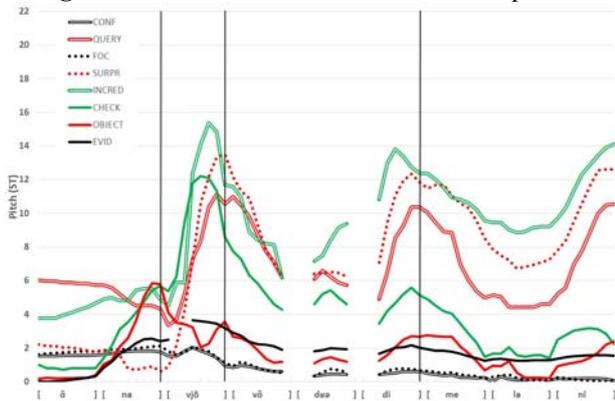
Figures 1–4 below show the time-normalized F0 curves in ST of the TS part ‘*en avion, vendredi, Mélanie*’ for each speaker averaged across the five repetitions of each TS.

The speakers were quite constant over their repetitions for a same TS. They usually realized the CONF and FOC TSs in a similar way. This was also the case for QUERY and SURPR TSs. INCRD, CHECK, EVID and OBJECT sentences presented a bit more variation. Speaker MS1 did not differentiate the INCRD TSs from CONF and FOC ones as far as the F0 is concerned.

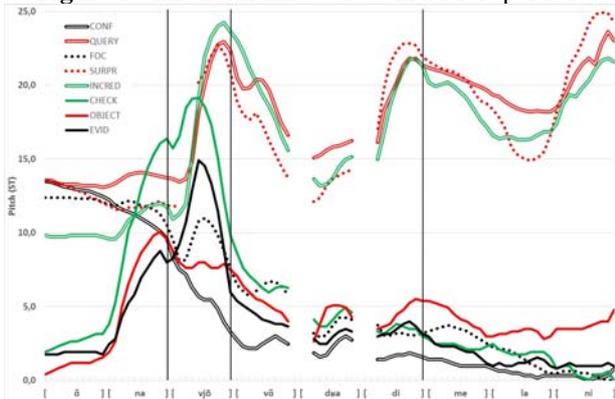
**Figure 1:** time-normalized curves in ST for sp. FS1



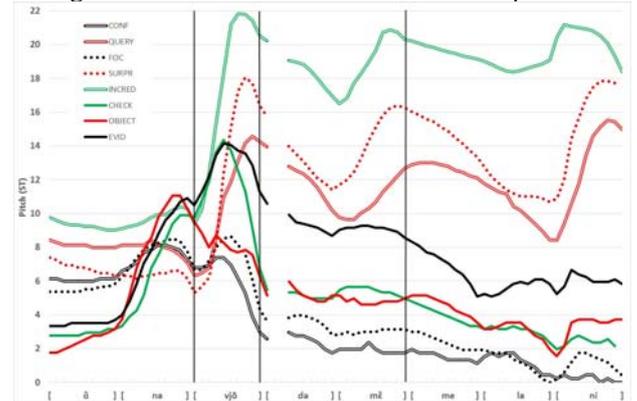
**Figure 2:** time-normalized curves in ST for sp. FS2



**Figure 3:** time-normalized curves in ST for sp. MS1



**Figure 4:** time-normalized curves in ST for sp. MS2



Let us begin with the FOC and CONF TSs. The intonation of these utterances is generally similar and matches the previous prosodic descriptions of focalization in French. The focused noun is characterized by a fall on its final syllable, preceded by a rise either on its first or last syllable depending on the speaker. The difference between FOC and CONF sentences essentially lies in the higher pitch of the peak in FOC sentences. As can be seen in Figures 1–4, each RDC is produced with a flat or slightly declining low plateau, the second RDC being lower than the first one ( $-2.1$  ST on average); this suggests that each RDC forms a prosodic phrase right bounded by a lowered low tone as depicted by [4, 20, 29].

In QUERY and SURPR TSs, the focus exhibits a final rise whose melodic minimum is aligned with the penultimate syllable [na]. The contrast between QUERY and SURPR TSs lies in the range of the rise and the height of the peaks, which are more important in SURPR TSs. As shown in Figures 1–4, the RDCs display neither a high plateau at the same height or somewhat lower than the focal peak nor an upstepped final rise as described by [16] for instance; rather, they are more like those depicted in [3, 7, 28, 29]. The final syllable of each RDC is realized as a clear rise reaching, on average, an equivalent height to that of the focus but with a smaller range (*ca.*  $+5/10$  instead of *ca.*  $+7/13$  ST in the focus), and the first syllable of each RDC is pronounced with a gradual fall up to the minimum of the following rise.

The results concerning these four types of utterances seem hard to reconcile with the view that a unique phrasal or boundary low or high tone is selected and spreads over the RDCs as claimed by [16] for instance. Rather, they support the idea that RDCs are marked by a reduced copy of the melodic pattern associated with the focus. The low tone at the end of each RDC in CONF/FOC TSs may be viewed as an iterative and lowered duplication of the focus final low tone, and the somewhat compressed rise found on each RDC in QUERY/SURPR TSs is better understood

as an iterative reduced copy of the rise occurring on the focus.

This process of copy is corroborated by the intonation of the OBJECT, CHECK and EVID TSs. As can be seen in Figures 1–4, the speakers (except for speakers FS1/2 in OBJECT TSs, see below) pronounce the focus in OBJECT TSs with an intonation pattern phonetically similar to the LHM contour described by [6]. There is a high tone on the penultimate syllable [na], preceded by a very low tone on the preposition [ã]; the last syllable is lower than the penultimate H but higher than the initial L. In CHECK and EVID TSs, the focus can be described by the same sequence, LHM, but the H is associated with the *last* accented syllable, not the penultimate one as in the OBJECT TSs. The distinction between the CHECK and EVID LHM pattern lies in the height of the H; in CHECK TSs, the H is higher and generally reaches a pitch height equivalent to that of the peak in QUERY TSs.

As for the RDCs in these three types of sentences, Figures 1–4 reveal that they are lower than the final syllable of the focus but higher than the low RDCs in FOC/CONF TSs. In other words, the intonation of OBJECT, CHECK and EVID TSs confirms that each RDC actually duplicates the last pitch target of the focus. The final M of the LHM sequence is copied on each RDC and iteratively lowered in the same way as the lowered L in CONF/FOC TSs. In a framework without an M tone, the phonetic LHM contour could be represented as [17]’s ‘suspended fall’ LH!H\*. !H\* is copied and triggers iterative downstepped H tones on the RDCs. On the other hand, the intonation of OBJECT, CHECK and EVID TSs is incompatible with an analysis using a sequence LHH-L% (cf. [16]), which cannot account for iterative downstepped post-focus tones, high or mid.

Another piece of evidence for the copy analysis comes from the performances of speakers FS1/2. They pronounce the OBJECT contour as a sequence LHLH, which seems to convey an additional emphatic or exclamatory nuance in meaning. Yet, as shown in Figure 1 (red single curve), the sequence (L)HLH is repeated and reduced on each RDC.

Finally, turning to INCREDED TSs, Figure 1 shows that speaker FS1 produces a rise-fall on the last syllable of the focus (which is also significantly lengthened). The peak of the rise is slightly higher than that of the SURPR peak, and the minimum of the fall is broadly realized in the same register as the pitch minimum found in the QUERY/SURPR RDCs. This rise-fall is reproduced in each RDC with a reduced range; in particular, the fall consists of a small drop in pitch as depicted in [3]’s paper; note that there are no upstepped tones in the RDCs, just as there were none in QUERY and SURPR TSs.

How is this rise-fall to be represented? We might translate it into LH(M) on the basis of the accentual high + mid tone contour proposed by [3]. The rather high pitch of the mid tone would be due to the extra-high tones that surround it. The brackets signal that the M is a *floating* tone; that is, it may be realized on the last accented syllable of the focus or remain unassociated, causing a small drop in pitch.

As can be seen in Figures 2 and 4, this LH(M) contour is also used by the speakers who distinguish an INCREDED contour from a QUERY/SURPR one; the focused nouns and the RDCs end with a rise followed by a small drop. Speaker MS2 further expresses INCREDED TSs with a substantial increase of pitch (cf. Fig. 4). In some recordings, we observed a realized M tone on the focus but never on the RDCs.

#### 4. CONCLUSION

The results have clearly shown that the intonation of RDCs does not consist of a mere contrast between a low and a high plateau due to the independent selection of either low or high tones of any type; rather, results demonstrate that RDCs intonation can be best described as the iterative copy of one or more tones occurring on the focus.

The copy does not always involve the last tone of the focus only as proposed by [4, 8, 17]; tone sequences may be replicated, such as the LH(M) pattern in the interrogative sentences (cf. [3, 29]) or the HLH pattern in speaker FS1/2’s OBJECT TSs. Moreover, the copy implies an intonational ‘weakening’ of the duplicated pattern in the form of a pitch range reduction and/or a tone lowering and/or the lack of realization of a floating tone.

The tonal copy, along with the intonational ‘weakening’, may be interpreted as a consequence of the fact that RDCs have no proper intonation at a phonological level and are dependent on the focused item. On the one hand, models in a ‘standard’ MA framework (cf. [1]), such as that of [16] for example, are unable to account for this dependency; on the other hand, models of intonation such as those of [8, 20, 21, 24, 29], for instance, where dependency relationships between the focus and the post-focus items are encoded on a phonological ground, seem to be more accurate.

Finally, the intonation of RDCs reveals that a mid tone and/or a downstepped !H, probably with extra-high tones, is needed to adequately describe French intonation, and the fact that tone sequences can be duplicated shows that we must also posit contours that constitute single complex units (cf. also [3]).

## 6. REFERENCES

- [1] Beckman, M. E., Pierrehumbert, J. 1986. Intonational structure in Japanese and English. *Phonology Yearbook* 3, 255–309.
- [2] Boersma, P., Weenink, D. *PRAAT*. <http://www.fon.hum.uva.nl/praat/>.
- [3] Clech-Darbon, A., Rebuschi, G., Rialland, A. 1999. Are there cleft sentences in French? In: Rebuschi, G., Tuller, L. (eds), *The Grammar of Focus*. Amsterdam/Philadelphia: John Benjamins Publishing, 83–118.
- [4] Delais-Roussarie, E., Rialland, A., Doetjes, J., Marandin, J. M. 2002. The prosody of post-focus sequences in French. *Proc. 1<sup>st</sup> Speech Prosody Aix-en-Provence, France*, 239–242.
- [5] Delattre, P. 1966. Les dix intonations de base du français. *French Review* 40(1), 1–14.
- [6] Dell, F. 1984. L'accentuation dans les phrases en français. In: Dell F., Hirst D., Vergnaud, J. R. (eds), *Forme sonore du langage*. Paris: Hermann, 65–122.
- [7] Di Cristo, A. 1998. Intonation in French. In: Hirst, D., Di Cristo, A. (eds), *Intonation Systems: A Survey of Twenty Languages*. Cambridge, England: CUP, 195–218.
- [8] Di Cristo, A. 1999. Le cadre accentuel du français contemporain: essai de modélisation. Deuxième partie. *Langues* 2(4), 258–267.
- [9] Di Cristo, A. 2004. La prosodie au carrefour de la phonétique, de la phonologie et de l'articulation formes-fonctions. *Travaux Interdisciplinaires du Laboratoire Parole et Langage* 23, 67–211.
- [10] Di Cristo, A. 2011. Une approche intégrative des relations de l'accentuation au phrasé prosodique du français. *French Language Studies* 21, 73–95.
- [11] Di Cristo, A., Jankowski, L. 1999. Prosodic organization and phrasing after focus in French. *Proc. 14<sup>th</sup> ICPHS San Francisco*, 1565–1568.
- [12] Gussenhoven, C. 1988. Adequacy in intonation analysis: The case of Dutch. In: Van der Hulst H., Smith, N. (eds), *Autosegmental studies on pitch accent*. Dordrecht: Foris, 95–121.
- [13] Gussenhoven, C. 2000. The boundary tones are coming: On the non-peripheral realization of boundary tones. In: Broe, M. B., Pierrehumbert, J. B. (eds), *Papers in Laboratory Phonology V: Acquisition and the Lexicon*. Cambridge, England: CUP, 132–151.
- [14] Gussenhoven, C., 2004. *The Phonology of Tone and Intonation*. Cambridge: Cambridge University Press.
- [15] Hirst, D., Di Cristo, A. 1998. A survey of intonation systems. In: Hirst, D., Di Cristo, A. (eds), *Intonation systems: A survey of twenty languages*. Cambridge, England: CUP, 1–44.
- [16] Jun, S. A., Fougeron, C. 2000. A phonological model of French intonation. In: Botinis, A. (ed), *Intonation: Analysis, Modelling and Technology*. Dordrecht: Kluwer Academic Publishers, 209–242.
- [17] Ladd, D. R. 2008. *Intonational Phonology*. 2nd ed., Cambridge, England: CUP.
- [18] Lambrecht, K. 1981. *Topic, Antitopic, and Verb Agreement in Non-Standard French*. Amsterdam / Philadelphia: John Benjamins Publishing.
- [19] Lambrecht, K. 1994. *Information Structure and Sentence Form*. Cambridge, England: Cambridge University Press.
- [20] Le Gac, D., Yoo, H. Y. 2002. Intonative structure of focalization in French and Greek. In: Beyssade C. et al. (eds), *Romance Languages and Linguistic Theory 2000*. Amsterdam / Philadelphia: John Benjamins Publishing, 213–231.
- [21] Martin, P. 1981. Pour une théorie de l'intonation. In: Rossi M., Di Cristo A., Hirst D., Martin P., Yukihiro N. (eds), *L'intonation: de l'acoustique à la sémantique*. Paris: Klincksieck, 234–271.
- [22] Martin, P. 1982. Phonetic realisations of prosodic contours in French. *Speech Communication I*. North-Holland Publishing Company, 283–294.
- [23] Martin, P. 2009. *L'intonation du français*. Paris: Armand Colin.
- [24] Mertens, P. 1993. Accentuation, intonation et morphosyntaxe. *Travaux de linguistique* 26, 21–69.
- [25] Mertens, P. 2008. Syntaxe, prosodie et structure informationnelle: une approche prédictive pour l'analyse de l'intonation dans le discours. *Travaux de linguistique* 1(56), 97–124.
- [26] Pierrehumbert, J. B., Beckman, M. E. 1988. *Japanese Tone Structure*. Cambridge, MA: MIT Press.
- [27] Post, B. 2000. *Tonal and Phrasal Structures in French Intonation*. The Hague: Holland Academic Graphics.
- [28] Rossi, M. 1981. Intonation, énonciation, syntaxe. In: Rossi, M., Di Cristo A., Hirst D., Martin P., Yukihiro N. (eds), 1981. *L'intonation: de l'acoustique à la sémantique*. Paris: Klincksieck, 184–233.
- [29] Rossi, M. 1999. *L'intonation, le système du français. Description et modélisation*. Paris: Ophrys.
- [30] Savino, M., Grice, M. 2011. The perception of negative bias in Bari Italian Questions. In: Frota, S., Elordieta, G., Prieto, P. (eds), *Prosodic Categories: Production, Perception and Comprehension*. Dordrecht: Springer, 187–206.
- [31] Touati, P. 1987. *Structures prosodiques du suédois et du français*. Lund: Lund University Press.
- [32] Xu, Y. 1997. Contextual tonal variations in Mandarin. *Journal of Phonetics* 25, 61–83.
- [33] Xu, Y. 2013. ProsodyPro: A tool for large-scale systematic prosody analysis. *Proc. Tools and Resources Analysis of Speech Prosody*, Aix-en-Provence, France, 7–10.
- [34] Ziv, Y. 1994. Left and right dislocations: Discourse functions and anaphora. *Journal of Pragmatics* 22(6), 629–645.

<sup>1</sup> We would like to thank our speakers Amandine Denimal, Aline Marchand, Thomas Bertin and Vincent M. for helping us to carry out this study and for participating in the recordings.