Intonational encoding of focus in Toulousian French

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Abstract

Previous studies on focus marking in French have shown that post-focus deaccentuation, phrasing and phonetic cues like peak height and duration are employed to encode narrow focus but tonal patterns appear to be irrelevant. These studies either examined Standard French or did not control for the regional varieties spoken by the speakers. The present study investigated the use of all these cues in expressing narrow focus in naturally spoken declarative sentences in Toulousian French. It was found that similar to Standard French, Toulousian French uses post-focus deaccentuation and phrasing to mark focus. Different from Standard French, Toulousian French does not use the phonetic cues but use tonal patterns to encode focus. Tonal patterns ending with H% occur more frequently in the VPs when the subject is in focus but tonal patterns ending with L% occur more frequently in the VPs when the object is in focus. Our study thus provides a first insight into the similarities and differences in focus marking between Toulousian French and Standard French.

1. Introduction

Focus, defined as the constituent(s) conveying new information about a situation or a referent in a sentence, is primarily marked by means of intonation in many languages. It can be contrastive if the information is chosen from a closed set of alternatives in the discourse (Chafe 1974). It can also have different scopes, i.e. a single lexical word (narrow focus) vs. two or more lexical words (broad focus) (Ladd 1980). Contrastive focus usually has a narrow scope. In Germanic and some Romance languages (e.g. Italian and Portuguese), both the placement of pitch accent and the type of pitch accent (i.e. the phonological cues) can be essential to the marking of focus. Further, gradient variations in pitch scaling, peak alignment and duration (i.e. the phonetic cues) also play a role, in particular in distinguishing different types of focus (i.e. broad focus, non-contrastive narrow focus, contrastive narrow focus), which are encoded phonologically in a similar way (e.g. Baumann, Becker, Grice & Mücke 2007, Hanssen, Peters & Gussenhoven 2008).

Past work on intonational realization of focus in French is mainly concerned with contrastive focus. It has been found that contrastive focus is marked by a global rise-fall contour and forms one phrase with the post-focus sequence. The fall is associated with the rightmost full syllable of the focal constituent; the rise is aligned with any but the rightmost full syllable in objective contrastive focus (i.e. corrective contrast) but with the rightmost full syllable in expressive contrastive focus. The pre-focus sequence is realized with a reduced pitch range and amplitude and a reduced number of phrase boundaries. The post-focus sequence is realized with a flat contour or deaccented (e.g. Rossi 1985, Touati 1987, Di Cristo & Hirst 1993, De Cristo 1998). These findings are largely confirmed in a recent experimental study by Jun and Fougeron (2000). Jun and Fougeron analysed the intonation of contrastive focus (comparable to Di Cristo's objective contrastive focus) implemented on different sentence constituents, pre-focus sequence, and post-focus sequence in read-out declarative sentences as well as interrogative sentences by five speakers of Parisian French. Regarding the post-focus sequence, they observed that it is sometimes realized as an independent intonational phrase, instead of being in the same phrase as the focal constituent. They also noted that the tonal patterns in the focal constituent vary depending on the speaker and the length of the constituent and that the fall can occur in the final syllable of the constituent. Dohen and Lœvenbruck (2004) examined the phonetic realization of contrastive focus in read-out declarative sentences by one male speaker of French. They observed an increase in pitch peak and duration of the focal word compared to the same word produced in the whole-sentence focus condition.

Assuming that French has no lexical stress and hence no pitch accent, Féry (2001) examined the role of phrasing and tonal patterns (sequences of high and low tones) in the marking of non-contrastive narrow focus (hereafter narrow focus) implemented on different constituents (e.g. subject, object, verb), whole-sentence focus, and double-focus in read-out question-answer pairs by ten speakers of French from different regions of France. It was found that phrasing plays little role in expressing whole-sentence focus and narrow focus on subject but is crucial in expressing narrow focus on the other constituents and double-focus. More specifically, the pre-focus sequence is almost always spoken as one phonological phrase, whereas the focal-constituent is mostly spoken as one phonological phrase with the post-focus sequence. Furthermore, it was shown that tonal patterns in the focal constituent are not used to express focus and are

subject to between-speaker variations, as observed by Jun and Fougeron (2000) in the case of contrastive focus.

Taken together, past work has provided evidence that post-focus deaccentuation, phrasing and phonetic cues like pitch height and duration all play a role in encoding contrastive focus and narrow focus but tonal patterns appear to be irrelevant. The present study aims to give a description of the use of all these cues in expressing both contrastive focus and narrow focus in Toulousian French. Specifically, we address the following questions:

(1) Pitch range and duration: Is a given constituent spoken with a larger pitch range and longer duration when in focus than when not in focus?

(2) Post-focus deaccentuation: Is the post-focus sequence deaccented?

(3) Phrasing: Does the focal constituent form its own phrase or form a phrase with the post-focus sequence or the pre-focus sequence?

(4) Tonal patterns: Are there certain patterns more strongly associated with focal constituents than other patterns?

In the work reviewed above, the variety of French under investigation was either Standard French, including Parisian French, or not specifically controlled. Recent work on French intonation begins to look into formal differences among regional varieties (Post & Delais-Roussarie 2006). Past work on English and Chinese has shown that intonational realization of focus can differ from variety to variety. It is an open question as to whether differences in the intonational encoding of focus exist among regional varieties of French. Together with the existing work, our study on Toulousian French can help to find answers to this question.

2. Method

A picture-completion task adopted from Chen (2007) was used to elicit SVO declarative sentences with narrow focus on the subject (NF-S) or the object (NF-O) and contrastive focus on the object (CF-O). The sentences were uttered as answers to WHO-questions in the NF-S condition, or answers to WHAT-questions in the NF-O condition, or answers to false guesses about the pictures with the correction on the object in the CF-O condition, as illustrated in (1). Subject and object nouns were all disyllabic words. Where possible, words with sonorants and voiced consonants were used to facilitate intonational annotation. Each object noun occurred in all focus conditions. Subject nouns were identical in NF-S and NF-O. Sentences with identical subject nouns had different object nouns.

(1)
A. Narrow focus on the subject (NF-S):
Experimenter :   Regarde! Un marron!
               (Look ! A chestnut.)
               Qui mange le marron?
               (**Who** is eating the chestnut?)

Participant :   **Un lapin** achète le marron.
               (**A rabbit** is eating the chestnut.)

B. Narrow focus on the object (NF-O):
Experimenter :   Regarde! Un lézard!
               (Look ! A lizerd!)
               Qu'achète le lézard?
               (**What** is the lizerd eating?)
Participant :   Le lézard mange **un marron**.
               (The lizard is eating **a chestnut**.)

C. Contrastive focus on the object (CF-O):
Experimenter :   Regarde! Un canard!
               (Look! A duck!)
               Est-ce que le canard mange **une fraise**?
               (Is the duck eating **a strawberry?**)
Participant :   (non) Le canard mange **un marron**.
               ((no) The duck is eating **a chestnut**.)

2.1 The picture-completion task

In each trial, the experimenter took a picture that was not completed (e.g. a duck that seems to be eating something) from a box. She drew the participant's attention to the picture and established what the picture was by saying 'Regarde! Un canard!' "Look! A duck!". She then described what seemed to be missing in the picture, and asked a WH-question about it (e.g. Qu'achète le canard? "What is the duck eating?") in NF-O and NF-S but a YES-NO question in CF-O (e.g. Est-ce que le canard mange une fraise? 'Is the duck eating a strawberry?'). Second, the participant turned to a virtual robot for help by clicking on a picture of the robot displayed on her computer screen. The participant received the answer (in SVO word order) in abnormal prosody from the robot via a headphone set. Third, the experimenter repeated the question and the participant then used the same words as the robot to answer the experimenter's question but in her own intonation (e.g. 'Le canard mange un marron' "The duck is eating a chestnut."). Finally, the experimenter looked for the completed picture (e.g. a picture with a duck eating a chestnut) and handed both pictures over to the participant. Twenty-four question-answer pairs were embedded in the game, eight in each focus condition.

2.2 Participants

Twenty-one female monolingual speakers from the Toulousian area (17 ~ 44 years old) took part in the experiment and were paid a small fee. They reported to have normal hearing and speaking. Data from six speakers were analysed and reported in this paper.

2.3 Procedure

The participants were tested individually in a quiet room at a primary school in Albi, a town near to Toulouse. The experiment began with four practice trials. Each session was recorded with an external high-quality microphone connected to a flash-card recorder at 48 kHz sampling rate with 16-bit resolution. The microphone was placed 10-15 cm away from the mouth of the participant. Twenty-four answer sentences were elicited from each participant.

2.4 Annotations

The recordings from six speakers were segmented and each answer sentence was saved as a separate file by means of Praat (Boersma 2001). Four sentences were excluded from further analysis because of disfluency. The other 140 answer sentences were then segmented

at the word level. Two pitch-related landmarks were labeled in every noun, H – the point at which pitch maximum was reached and L – the point at which pitch minimum was reached, in addition to landmarks demarcating the begin and end of the noun. These landmarks allowed us to calculate the duration and pitch range of each noun.

Furthermore, the answer sentences were annotated for phrasing and tonal patterns following Jun and Fougeron's (2002) model. In this model, the basic structural unit is the accentuation phrase (AP). APs are grouped into intonational phrase (IP). An AP contains one or more content words, which may be preceded by one or more function words. It has an underlying tonal pattern LHiLH* (early rise-late rise). The initial LHi sequence is a phrase accent marking the initial boundary of an AP, and is associated with the AP initial edge. The sequence LH* is a pitch accent. It also marks the right edge of an AP. H* is associated with the final full syllable of the last content word in an AP; the L tone is not associated with any specific syllable. However, not all four tones need to be realised simultaneously. The LHiLH* tonal pattern has five variants: LH* (with the medial tones not realised), LLH*, LHiH*, HiLH*, and LHL*. When an AP is the final AP in an IP, the AP-final tone is taken as the IP boundary tone (L*-> L%, H*-> H%). Additional tonal patterns stemming from the HLiHL* pattern also occurred in our data but infrequently.

3. Analysis and results
As no statistically significant difference was found between CF-O and NF-O, we report the analyses with the two focus types collapsed as one category in this section. The factor 'focus condition' had two levels i.e. NF-S vs. N/CF-O, in all but the analyses on pitch range and duration in the subject nouns. In these analyses, data in CF-O were not included because the subject nouns were identical only in NF-S and NF-O.

3.1 Pitch range and duration
Mixed-effect models were built for pitch range and duration of the subject nouns and object nouns with focus condition as the fixed-effect factor and participant, word and tonal patterns as the random-effect factors. The models showed that duration tended to be longer and pitch range tended to be larger in focus than in non-focus in respect of both the subject nouns and the object nouns but the difference did not reach statistical significance.

3.2 Post-focus deaccentuation
As a high tone (H*, H, or Hi) occurred in 85% of the verbs, post-focus deaccentuation was operationalised as deaccentuation in the object NP. If a high tone occurred neither in the article nor in the object noun, the object NP was considered deaccented. A binary logistic regression analysis was conducted with whether there was a high tone in the object NP as the dependent variable and focus condition as the

independent variable. The analysis showed a main effect of focus condition (χ^2= 7.70, df =1, p = 0.006). Wald statistics showed that a high tone was significantly more frequently absent in the object NP when focus was on the subject (Wald = 7.09, df =1, p = 0.008, Exp(B) = 2.92) than when focus was on the object.

3.3 Phrasing
The subject NP almost always formed an independent APs A binary logistic regression analysis was thus conducted on the object NPs with whether the object NP formed an independent AP as the dependent variable and focus condition as the independent variable. The analysis revealed a main effect of focus condition (χ^2=17.74, df =1, p < 0.0001). Although the object NP formed an AP with the verb in over 60% of the cases, the object NP was uttered as an independent AP significantly more frequently when focus was on the object than when focus was on the subject (Wald = 9.52, df = 1, p = 0.002, Exp(B) = 10.31), as shown in Figure 1.
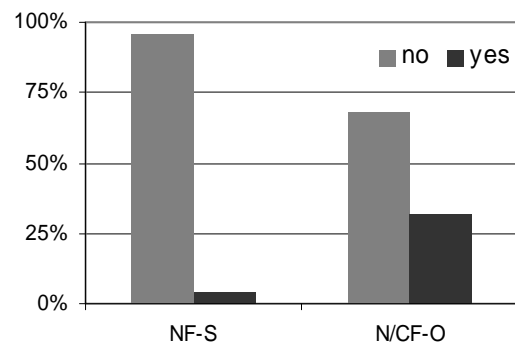

Figure 1. Distrubtion of object NPs spoken as independent accentuation phrases (yes) and non-independent accentuation phrases (no) in two focus conditions.

3.4 Tonal patterns
A multinomial logistic regression analysis was conducted with the tonal patterns in the subject NPs as the dependent variable and focus condition as the independent variable. The analysis revealed no effect of focus condition. The subject NPs were frequently realized with LH* and H* regardless of focus conditions. Regarding the tonal patterns in the object NPs, because of the small number of object NPs spoken as independent APs, no regression analysis could be done on the tonal patterns in these object NPs. A second multinomial regression analysis was thus conducted on the tonal patterns in the VPs (verb + object NP) spoken as independent APs. The analysis showed a main effect of focus condition (χ^2= 19.34, df = 4, p = 0.001). HiLH% and LHiLH% occurred more frequently in the VPs in NF-S, whereas HiL% and LHiL% occurred more frequently in the VPs in NF/CF-O. Examples of the four contours are given in Figure 2.
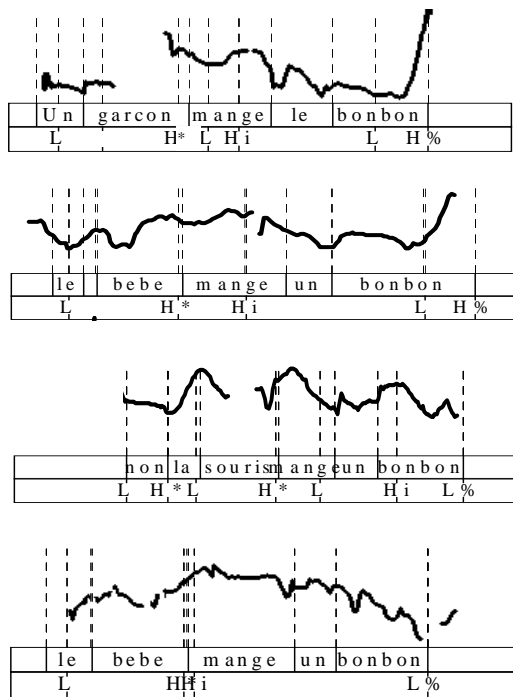
Figure 2. Examples of the most frequent tonal patterns in the VPs: LHiLH% and HiLH% in NF-S; HiL% and LHiL% in N/CF-O.

4. Discussion and conclusions

Our results show that contrastive focus and narrow focus are encoded intonationally in a similar way in Toulousian French. The use of the cues under investigation is, however, not always similar to what has been reported in earlier work concerning Standard French mostly.

Specifically, in respect of pitch range and duration, we have found no systematic increase in these parameters in the focal noun in comparison to the same word in the non-focal condition. In contrast, Dohen and Lœvenbruck (2004) found an increase in the pitch of the high tone compared to the same tone in the same word in the whole-sentence focus condition and an increase in the duration of the focused syllables compared to the same syllables in the whole-sentence focus condition. Assuming that a non-focal word in the narrow focus condition is spoken with even less acoustic prominence than a word in the whole-sentence focus condition, such a discrepancy in results may seem odd. However, considering that Dohen and Lœvenbruck's findings were based on read-out speech from one male speaker, our finding suggests substantial between-speaker variations in the use of pitch range and duration in Toulousian French.

Furthermore, we have found that Toulousian French uses post-focus deaccentuation to mark focus and phrasing to mark focus on the object, in line with earlier findings on the intonation realization of narrow focus. However, different from the post-focus deaccentuation in Parisian French, the post-focus deaccentuation in Toulousian French applies only to the object NP. The verb is mostly spoken with a high

tone. Different from Féry's observations about phrasing, the object NP is mostly spoken as one AP with the preceding verb regardless of focus conditions. But when the object NP is spoken as an independent AP, this occurs more frequently when the object is in focus.

In addition, unlike what has been reported in prior work, tonal patterns play a role in focus marking in Toulousian French. Tonal patterns ending with H% occur more frequently in the VPs when the subject is in focus but tonal patterns ending with L% occur more frequently in the VPs when the object is in focus. As a low boundary tone indicates finality, the use of L% in NF-O and CF-O may suggest that no more new information is coming up, i.e. informational finality.

To sum up, our study provides a first insight into the similarities and differences in intonational realization of contrastive focus and narrow focus between Toulousian French and Standard French.

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