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## Perceptual evaluation of tonal and contextual cues to sarcasm in French

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Verbal irony is a mode of expression in which what is stated differs from (or is even opposed to) what is meant. Irony exists in the majority of the languages and cultures of the world (Pexman, 2008). For an ironic meaning to be conveyed, the communicative effect is based on success on the part of the listener to understand the ironic intent of the utterance, i.e. the incongruity between the literal and the intended meaning (Ivanko & Pexman, 2003). Some researchers have proposed that acoustic irony cues are only employed if the common ground is not sufficient to indicate the intended message (Cutler, 1974). Note, though, that more recent research has shown that ironic content can be identified even in absence of contextual cues thanks to global acoustic/prosodic cues (Bryant & Fox Tree 2002). Specifically, it has also been shown that young children can recognize the intonational markers of sarcasm, and this ability is developmentally distinct from the ability to recognize sarcasm through semantic or contextual cues (Ackerman, 1981; *inter alia*). However, we still do not know what is the actual role of prosody, in particular of intonational phonology features (Ladd, 1996/2008), in irony comprehension.

Concerning actual acoustic cues, sarcasm appears to be encoded in speech through various global manipulations in acoustic parameters such as fundamental frequency ( $f_0$ ), amplitude, speech rate, voice quality and vowel hyperarticulation (Attardo et al., 2003; Bryant & Fox Tree, 2005; Cheang & Pell, 2008; Rockwell, 2000; Sharrer & Christman, 2011; *inter alia*). A previous study on global prosodic features of sarcastic speech in a corpus of declarative French utterances (Ben Jannet, 2012; Loevenbruck et al., submitted) suggests that sarcastic productions are characterized by utterance lengthening, by increased  $f_0$  modulations and a global raising of the pitch level and range. In this study, we explore the expression of sarcasm in French, for which phonological data are still lacking. Specifically, here we test the acceptability of prototypical sarcastic tonal contours in presence of matching or conflicting contextual cues.

First, a set of 14 sentences with the same syntactic structure (Noun-Verb-Noun-Adjective) were produced by 34 speakers, divided in 2 groups, so that each group read each sentence only after a neutral (NC) or a sarcastic context (SC), as exemplified in (1). Contexts were produced by a trained speaker and recorded in a soundproof booth on a DAT recorder. Target sentences included either long (6 syllables) or short (4 syllables) final Accentual Phrases (AP), in order to test prosodic variability induced by length.

(1) *Alain a convaincu Marion d'aller au bar de karaok e.*

'Alain has convinced Marion to go to a karaoke bar'.

SC- *Lorsqu'il a chant e, les gens ont commenc e   lui lancer des tomates.*

'When he started singing, people started to throw tomatoes at him'.

NC- *Alain a chant e et apr es sa performance, les gens l'ont applaudi.*

'Alain has started singing and after his performance, people have applauded him'

Marion dit : *Alain est un musicien merveilleux.*

Marion says ‘Alain is a marvellous musician’.

From this database (which was intonationally labeled), 14 neutral and 14 sarcastic renditions of each utterance were extracted according to prototypical prosodic features as identified in Loevenbruck et al. (submitted). Context sentences and stimulus sentences were digitized into individual sound files, ready to be cross-spliced. We hence created 28 matching pairs (7 short sentences, 7 long sentences in 2 context types, neutral and sarcastic). Stimuli were interspersed with 28 fillers and presented to 2 groups of listeners. Each group listened to each utterance in only one of the two contexts, either neutral or sarcastic. Both groups listened to an equal number of sarcastic and neutral utterances. 28 non-matching and 28 matching-pairs were evaluated by 40 native French subjects for their acceptability. The two groups judged the utterance-context pairs as being either acceptable or non-acceptable in a two-alternative forced choice procedure. They also had to rate their confidence level in interpretation using a 5-point Likert scale. Results are currently being analyzed and will be presented at the conference.

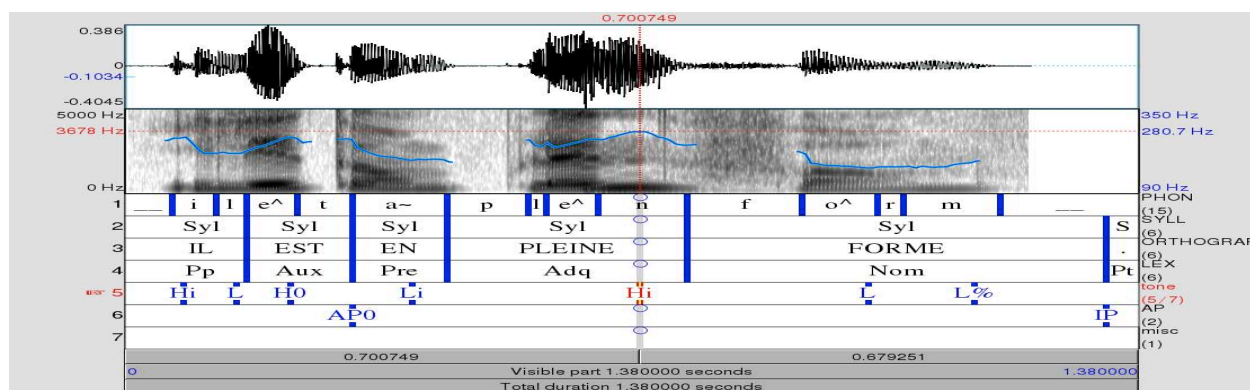


Figure 1. Example of a prototypical sarcastic contour.

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