A preliminary study of penultimate syllable accentuation in Swiss French
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The goal of this contribution is to provide an acoustical study of penultimate accentuation in French, which is a strong prosodic cue involved in the recognition of a regional variety of European spoken French [Carton et al. 1991]. More precisely, this study aims at determining whether this type of accentuation is present in the variety spoken in the Swiss region of Neuchâtel and, if it is the case, at examining the acoustical parameters involved in the perception of accented penultimate syllables in this variety.

Very little work has been dealing with penultimate syllable accentuation in non standard varieties of spoken French in Europe, and the reasons that motivate its realization are still mysterious. As regards the acoustical properties (which will interest us here), scholars used to describe the penultimate accented syllables as being associated with strong melodic and lengthening variations [Métral 1977; Carton 1986; Sterling Miller 2007; Hambye & Simon to appear].

Following the literature, we considered that the minimal unit for prosodic analysis is not the graphemic word [Garde 1968], but the accental phrase (henceforth AP). In Parisian French, according to Jun & Fougeron [2000, 2002], among others, the AP consists of one or more content words and the dependent function words. It is marked by a high tone associated with its rightmost full syllable and an optional high tone associated with a syllable at the left. In regional varieties of European French, one of the variant of this pattern involves the realization of an accent on the penultimate syllable of the AP.

In order to examine this question, we selected spontaneous sketches of conversation from the Neuchâtel corpus [Racine & Andreassen to appear] collected in the framework of the “Phonology of contemporary French” project [Durand et al. 2002, 2009, www.projet-pfc.net]. The data were aligned semi-automatically with Easyalign [Goldman 2007], which provides a 3-layer segmentation structure: segmentation within a phones string, a syllabic string, and a words string. The identification of APs was done automatically on the basis of the identification of the lexical and function words, and then revised manually on the basis of the perception of duration and melodic variations associated with the last syllables of the so identified chunks. The identification of penultimate accented syllables was finally obtained on the basis of perception judgments performed by three human expert annotators.

For each penultimate syllable of the AP recognized as prominent by 2 out of 3 of the expert annotators, we conducted the following measurements. Concerning f0, we calculated the f0 average of the penultimate syllable, and the height of the melodic peak on this syllable. We then (i) compared the former with the average of the two syllabic nuclei preceding it and with the average of the syllabic nucleus following it; (ii) compared the latter with the melodic peak of the syllabic nucleus preceding it and the last syllabic nucleus of the AP. Concerning duration, we compared (i) the normalized lengthening of the penultimate syllable with the normalized duration average of the two preceding syllables, (ii) the difference in lengthening of the penultimate syllable with the last syllable of the AP.

Preliminary results reveal firstly that f0 variations seem to be secondary cues for the perception of penultimate syllable accentuation. In fact, the automatic measurements show that an intra-vocalic rise is not always present on this syllable, and when it is actualized as a static tone, it does not clearly stand out from its context. On the other hand, duration variations appear to be more important in the perception of accentuated penultimate syllables, penultimate syllables of AP being recognized as prosodically prominent because of their significant lengthening, regarding to the preceding context or/and to the final syllable of the group.
References


Sterling Miller, J. [2007]. Swiss French prosody. Intonation, rate, and speaking style in the Vaud Canton. Ph.D., Department of French, University of Illinois at Urbana-Champaign.