

Tonal Alignment Distinctions Between Standard French and Vaudois Swiss French

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Abstract

This paper shows that measures of text-to-tune alignment (i.e. analyses of f_0 target points in relation to segmental landmarks) are able to shed light on significant prosodic differences in read speech between a group of six speakers of standard French from Northern France and a group of six speakers of Swiss French from the Vaud canton. The tonal targets measured in this study seemed to be anchored in different locations depending on the dialectal group. In the Vaudois group, initial rises tended to occur later while final rises tended to occur earlier in the target syllables. In addition, the low “elbow” point preceding the final rise was realized in the penultimate syllable more often in the Vaudois group than in the standard French group. These minute differences show that dialectal distinctions in a language whose main prosodic structure utilizes the Accentual Phrase can be encoded through tonal alignment.

1 Introduction

Several reports suggest that Swiss French differs from standard French in that the former has a slower speaking rate, and has pitch accents that are realized in the penultimate syllable of prosodic phrases, as opposed to the final syllable for the latter [1, 2]. However, to date little phonetic evidence has been brought to light in support of those claims, possibly because of the difficulty to obtain natural speech samples from Swiss speakers. Indeed, the francophone Swiss seem to switch to standard French in an environment where their speech is being monitored. This could be due to linguistic insecurity as noted by Prikhodine and Singy [3, 4]. As far as French and its varieties worldwide are concerned, Simon explains that “reading prosody” appears to be

standardized for all speakers, and recent studies have shown that it is hard, if not impossible, to identify regional prosodic characteristics from read speech in French [5, 6].

Investigating text-to-tune alignment could be a way to find distinctions in the prosody of two dialects of French. It has already been shown to provide dependable information on tonal structure as a correlate of lexical stress in several languages. Welby has used tonal alignment to study the implementation of H tones in standard French [7]. She showed that H initial tones in standard French are in fact phrase accents, as suggested by Jun & Fougeron, and not pitch accents as proposed by Post [8, 9]. Little phonetic data exist on Swiss French today; therefore the phonetic realization of potential pitch accents and their alignment in those local varieties of French remain important empirical questions. An analysis of tone alignment aims to determine if potential tonal target points in a text read by Vaudois French speakers are located in the same positions with respect to target syllables as in standard French.

2 Methods

The present study is based on a read speech corpus with a total of twelve speakers, six of them Swiss, six of them French, with an equal number of men and women in each group. The Swiss data were collected at the speakers’ homes with a digital recorder and clip-on microphone, while the French data were gathered at the University of Illinois, in a lab with a sound-proof room and a headset microphone. All the participants read the text “La Bise et le Soleil”, often used in phonetic studies.

The speech files were analyzed in Praat [10]. Accentual Phrase (AP) frontiers were determined according to perceptual breaks, syntax, and tonal configurations. A Praat script was written to

automatically retrieve the maximum and minimum f_0 values found in each AP interval that was not at the end of a major prosodic phrase (Intonation Phrase, or IP). Additional peaks and valleys were labelled manually. Alignment measures were taken for tonal patterns containing at least one Fall-Rise combination (the fall marked L1, and the rise marked H1) early in the AP or at least one Fall-Rise combination late in the AP (marked L2 and H2). The two rises will henceforth be referred to as ‘AP-initial’ and ‘AP-final’, and an AP usually contained both. The onsets of the syllable in which all these points occurred were marked in Praat as well. In all, there were 1,324 f_0 target points collected to be analyzed: 655 in the Swiss group, and 659 in the French group.

3 Results

In the present corpus there were significant differences between read Vaudois French and standard French, in both AP-initial and AP-final LH configurations. The t-tests performed revealed significant differences in alignment for all target points, except for the AP-final H points. AP-initial L points (L1) were realized significantly later in the Vaudois group than in the standard French group ($t(185) = 2.93$, $p = .004$). AP-initial H points (H1) were also realized significantly later in the Vaudois group ($t(287) = 3.47$, $p = .001$). AP-final L points (L2), on the other hand, were realized significantly earlier by the Vaudois speakers in the experiment, and more often in the syllable preceding the target onset, i.e. in the penultimate syllable of the AP ($t(342) = -2.49$, $p = .013$). Finally, AP-final H points (H2) tended to be realized earlier as well, but that trend was not shown to be significant ($t(433) = -.99$, $p = .322$).

These results provide insight on timing differences in the location of peaks and valleys in Vaudois vs. standard French, and suggest that there are differences in tonal alignment between Vaudois and standard French speakers, even in scripted speech. Swiss speakers in this experiment tended to start and finish the rise of AP-initial H points at a later point than the French informants, while initiating and completing the rise of AP-final points earlier. It was not rare to observe L2 points in the Swiss group being realized in the syllable preceding H2 points, i.e.

the penultimate syllable of the AP. That did not occur in the French group, whose speakers generally realized this point immediately after the start of the final syllable. Measures also indicate that the H2 points tended to be realized earlier as well in the Swiss group, but the statistical analysis showed that this distinction was non-significant. It was moreover noted that some H2 points were realized in the penultimate syllable of the phrase in the Vaudois corpus, though rarely.

4 Discussion

These minute differences in text-to-tune alignment may affect the way that Vaudois French is perceived, and could explain the reports mentioned in the introduction. The distinctions at play here could translate into a perceived delayed AP-initial rise and early AP-final rise compared to standard French, and thus possibly provide a perceptual cue to a Vaudois accent. If the AP-initial and AP-final rises are brought closer to each other, as they seem to be in the Vaudois corpus, it means that they are more likely to gravitate around the penultimate syllable of the AP, especially in short phrases, as opposed to the standard French corpus in which they are kept more distinct. That is schematized in Figure 1 below. The syllable in which H1 is realized in this schematization generally refers to the second syllable of the AP, with variation allowed. It occurred there 53% of the time in the Swiss group, and 49% of the time in the French group. H1 was realized within the first syllable of the AP 28% of the time for the Vaudois speakers and 26% of the time for the French. The vertical bars in the figure consequently indicate possible syllable boundaries. The bottom schematization shows a delayed initial peak and an early final rise in Vaudois French, compared with the pattern for standard French on top.

The phonological specifications of the target points analyzed here are not radically different. They are in fact identical in both dialects: a compound AP-initial LH phrase accent unit realized early in the AP but not anchored to a particular syllable, and an AP-final LH pitch accent unit generally anchored to the final syllable of the AP. The outcome presented in this paper suggests that those distinctions between the two dialects of French studied here are not of

phonological order, but rather have to do with phonetic implementation. This is similar to what Atterer & Ladd described for German, in which “Southern German speakers show later alignment than Northern speakers,” a difference carried over when they speak English [11]. The authors point out that those “findings argue against interpreting cross-language alignment differences in terms of distinct patterns of phonological association, and in favor of describing them in terms of quantitative phonetic realization rules.” Phonetic details perhaps then contribute a large part in differentiating standard from Vaudois French in read speech. The evidence shown in this article suggests that there is a typologically different way of encoding dialectal differences, and that can be done in some cases through tonal alignment. Smiljanić observed it in stress languages when she compared Serbian and Croatian [12]. The present data suggest that it is also true for languages utilizing the Accentual Phrase.

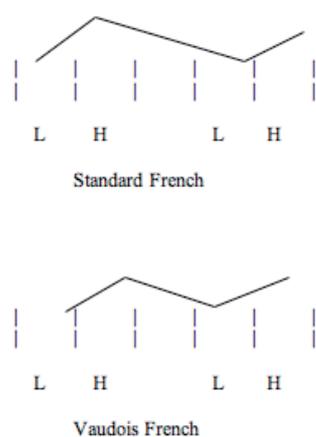


Figure 1: Schematization of AP-initial and AP-final rises for both dialect groups.

5 Conclusion

Although read Vaudois French is similar to read standard French in that speakers usually display similar intonational contours (mainly LHLH), this comparative study shows that there are differences in text-to-tune alignment significant enough to distinguish both varieties. Therefore, while there is a tendency for Swiss speakers to revert to a “reading

prosody” resembling standard French, as claimed by Simon (2003), there remain important small-scale differences between standard and Vaudois French. Both dialects are consequently not exactly identical in read speech. The seemingly small differences across dialect groups observed here suggest that dialectal distinctions between those two varieties may have to do more with phonetic implementation than phonological representation. The nature of the rise itself is perhaps more important than the actual location of the peak. Repercussions on the perception of Vaudois vs. standard French remain to be investigated, as well as differences in unscripted speech.

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