TONES THAT REPRESENT CONTINUATIVE INTONATION IN ACADIAN FRENCH

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1. INTRODUCTION

Descriptions of French intonation state that continuity or non-finality in declarative sentences is generally realized with a rising tone. Phonological analyses (e.g. Di Cristo 1998; Jun & Fougeron 1995, 2000; Post 2000) based on these descriptions agree that a tone is associated with a stressed syllable and that an utterance is organized into different prosodic levels which are related hierarchically. There is however disagreement on the number of different levels as well as on the representation of the tones. It is also noteworthy that these phonetic and acoustic descriptions are based mainly on corpora elicited in laboratory settings using tasks such as reading and repetition.

Following the research cited above, I adopt an autosegmental-metrical framework (see Ladd 1996) and assume that French melodies consist of sequences of High (H) and Low (L) tones organized into at least two intonational units. The accentual phrase (AP) is a lower-level tonal unit that is the domain of primary and secondary stress; it has a final rise that delimits processable chunks of speech and that is often represented as /LH*/. The intonation phrase (IP) is a higher-level tonal unit that ends in a boundary tone that marks a major continuation rise (/H%/) or a major final fall (/L%/).

This paper examines tonal variation related to continuations at both AP and IP levels. It provides a focus on spontaneous speech, a style which complements most data types used in the laboratory based corpora. A second feature of this study is that it examines Acadian French, a variety spoken in Canada's Atlantic region which differs in significant ways from varieties such as Parisian French. In addition to phrase-final stress found in many varieties of French, Acadian French also has a penultimate stress. Certain vowels in open penultimate syllables lengthen and carry a pitch accent. For example, *anglais*, 'English', is pronounced [ANglais] or [anGLAIS]; *on lisait*, 'we used to read', is [on LIsait] or [on liSAIT]. This penultimate stress interacts with phrase-final intonation structure. Cross-varietal differences in the intonation of phrase-final syllabes have been attested in recent research on varieties of British English (Grabe et al 2000) and underscore the importance of this dimension to the study of intonational phonology. The theme underlying the present research is to arrive at an inventory of phonological contrasts and their pitch accent realizations in Acadian French.

2. METHOD

Subjects were 12 native speakers of a Nova Scotia variety of Acadian French; six were male, six female; three age groups were represented. Data were stories told spontaneously in the context of recorded sociolinguistic interviews. Approximately three minutes of speech per subject were digitized for analysis. Three listeners (all native speakers of this variety) carried out auditory analyses to identify prominent syllables and domain edges in this corpus; one of their main tasks was to isolate AP and IP boundaries. Two additional listeners determined grammatical structures in the data. Auditory and acoustic analyses (F0 tracks obtained with the XWAVES software package) were used to analyze and transcribe the intonational structures of the utterances.

3. RESULTS AND DISCUSSION

A total of 1124 units (out of about 1500 APs and IPs) were identified as showing continuity (as opposed to hesitation, finality and interrogation); 685 were APs and 439 IPs. Six patterns of surface realizations of tones in phrase-final positions were observed. Table 1 reports the relative frequencies of each pattern in the two phrasal contexts.

phonetic pattern	description	AP	IP
a. [L H]	low rise	15%	14%
b. [H]	high plateau	15%	15%
c. [L]	low plateau	43%	37%
d. [LlL]	fall	10%	14%
e. [LHL]	rise-fall	10%	12%
f. [H L]	plateau-fall	7%	9%

Table 1. Relative frequencies of six types of surface tone realization by phrasal context.

The most striking result is the degree of difference between spontanous speech data and other styles (often used in studies).

a. [L H]: the low rising tone is fairly frequent, as predicted by most phonological analyses. In reading tasks (Jun & Fougeron 1995), this tone is very frequent (almost 90% of units observed).

b. [H]: the high tone is more frequent in a spontaneous setting than in reading (15% vs 1%).

c. [L]: the large number of low plateau tones is common in spontaneous speech. These tended to occur in contexts where listeners identified no phrase-final or phrase-penultimate stress.
d. [HL]: the falling tone is more common in spontaneous settings although it does occur in reading (Post 2000).
e. [LHL] and f. [H L]: these contours occur in both penultimate- and final-stressed syllables. Other varieties have the rise-fall pattern with phrase-final stress (Post 2000).

Figure 1 is an F0 track of the utterance: *(À l'école) on lisait anglais,* "(At school) we used to read English". The continuative rise-fall [LHL] tone on *lisait* has penultimate stress and is located at an AP boundary. *anglais* has final stress, is at an IP boundary and carries a [L] tone that indicates finality.

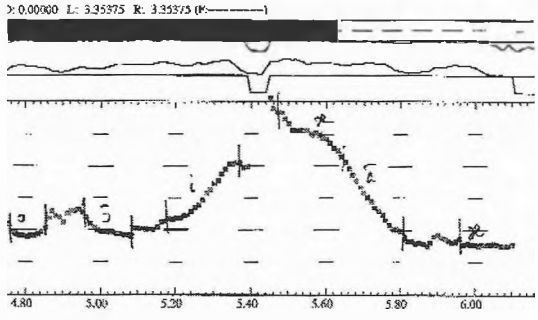

Figure 1. F0 track of *(À l'école) on lisait anglais.* Beginning and end of each vowel is indicated.

One of the relevant issues for a ToBI-type analysis of Acadian French is the representation of [L] tones at the end of APs where stress is penultimate. Current analysis suggests that AP-final tone is [H*] with no boundary tone. It is unclear how a fall can be generated from a peak in the accented syllable. One possible explanation may involve differences in timing needed to reach pitch targets.

As shown in Table 1, both AP and IP contexts have approximately the same frequencies of each type of surface tone realization. This suggests that, at least in continuative contexts, evidence from tones does not support two distinct levels of representation. Nevertheless, it appears that timing may be the cue for this distinction. In Acadian French (Cichocki 1996) and in Parisian French (Jun & Fougeron 2000), lengthening of final syllables is greater in IPs than in APs. The fact that native listeners were able to distinguish auditorily between two levels may reflect this cue.

4. CONCLUSION

Continuative intonation in Acadian French is realized by at least six types of surface tones, and these appear at both AP and IP levels. This high number of types is likely due to the context of spontaneous speech as opposed to read speech. A more elaborate analysis of discourse structure may also be revealing. Nevertheless, more systematic comparisons among styles are needed to develop a model of intonation. The presence of a penultimate pitch accent in Acadian French invites a more detailed phonological analysis of the intonation contours.

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