

A quantitative analysis of diphthongization in Montreal French

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In Montreal French, a process of diphthongization affects long vowels: both those that are inherently long and those that are lengthened due to their phonological environment (Dumas, 1981; Santerre and Millo, 1978). Inherently long vowels are those that are marked orthographically with a circumflex, indicating compensatory lengthening after the historical loss of a following /s/ (Yaeger-Dror and Kemp, 1992). Vowels are also lengthened before a set of lengthening consonants (*consonnes allongeantes*): the voiced fricatives /v, z, ʒ/ and /ʀ/.

Diphthongization affects the following vowels when stressed (Dumas 1981; see Côté 2008 for a discussion of diphthongs in unstressed position), non-final, and lengthened:

i	y	u
e	ø	o
ɛ	œ	ɔ
		ɑ

Diphthongization involves lowering of the vowel nucleus and addition of a raised offglide. However, the acoustic correlates for each vowel's diphthongal counterpart have not yet been reported in the literature. This paper aims to fill this gap by providing quantitative analyses of complete vowel systems (using Praat and an experimental French version of Plotnik) for the set of 12 speakers who were recorded over a 24-year span in the Montreal French corpora collected in 1971 (Sankoff et al., 1976), 1984 (Thibault and Vincent, 1990), and 1995 (Vincent et al., 1995).

Access to these quantitative measurements allows us to pursue two further avenues of research. First, in the spirit of recent work on linguistic change across the lifespan (e.g. Sankoff and Blondeau, 2007), the real-time data available in the Montreal corpora have allowed us to examine speakers' involvement in this change in progress as they age. Sankoff and Blondeau found that for the categorical change in place of articulation of Canadian French [r], some speakers moved in the direction of the change even after having passed the critical period. This appears to be true for the incremental, continuous changes associated with vowel movements as well. For example, the average (eur) diphthongization rate of the 12 speakers in our subsample increased from 41% to 51% to 61% in 1971, 1984, and 1995, respectively. This paper thus provides the first evidence of longitudinal change within individual speakers' vowel systems, and supplements previous studies such as Cedergren et al. (1981), based only on apparent time data.

Additionally, quantitative measurements of the vowels have allowed us to examine the movements of these speakers' vowel systems as a whole. Though previous work (Yaeger-Dror, 1989a,b) has referred to the diphthongization process in Québécois as a chain shift, we find this not to be the case. Rather, the movements in question simply constitute a general process of vowel lowering. Furthermore, in addition to the diphthongs previously reported in the literature, we have also found vowel monophthongization: speakers whose /œr/ surfaces not as the [ɑ^ør] variant reported by Dumas, but rather as [ɑ:r], with no offglide. This may be a natural progression of this change, which longitudinal research should help to clarify. Quantitative measurements thus also allow us to provide an informed analysis of the status and potential future directions of this change in progress.

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