Differences between read and spontaneous speech: an application of rhythm metrics to a New Brunswick variety of Acadian French

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Recent studies of speech rhythm use quantitative measures of segmental durations, known as rhythm metrics, to analyze timing differences between languages and between dialects. In the vast majority of these studies, data are obtained in a controlled setting, where speakers read (aloud) a fixed text. A small number of researchers have analyzed data from natural, non-scripted speech, which can differ considerably from reading. In this paper, we apply rhythm metrics to a corpus of Acadian French and compare values for read and spontaneous speech in order to determine whether these two styles have different rhythmic characteristics.

Data are from interviews with 12 speakers of Acadian French from the Acadian Peninsula region of northeastern New Brunswick. The sample is stratified by gender (2 groups) and age (3 groups), with two speakers in each cell. Interviews followed the protocol of the Phonologie du français contemporain project (www.projet-pfc.net) and included reading a text and spontaneously telling a story. Acoustic data from the reading and spontaneous styles were segmented in Praat. Approximately 2.5 minutes of speech per speaker were analyzed. The rhythm metrics calculated include interval measures (Ramus et al 1999) − %V, deltaV, deltaC, VarcoV, VarcoC – and pairwise variability measures (Grabe & Low 2002) − nPVI-V, rPV-C.

While results show considerable inter-speaker variation, the rhythm metric scores observed for read speech in this Acadian variety fall within the range reported for other dialects of French spoken in Canada (Kaminskaïa 2014). Articulation rate tends to be faster in spontaneous speech than in read speech. Statistical discriminant analyses indicate that the two speech styles are best differentiated by three normalized measures of duration variation; two are vocalic (VarcoV and nPVI-V) and one is consonantal (VarcoC). For all three measures, spontaneous speech has significantly greater interval and/or pairwise variability than read speech. The paper makes comparisons with patterns reported for European varieties of French (Meisenburg 2013) and for several other languages (Arvaniti 2012). One implication of this study is that rhythm metrics can contribute to a framework for the comparison of read and spontaneous speech.

References