

Variation in prosodic rhythm in regional varieties of New Brunswick French

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This paper reports the results of a study of rhythm in four regional varieties of French spoken in New Brunswick. The study examines whether these regions show greater and lesser degrees of syllable timing and whether degree of language contact correlates with this variation. Degree of language contact is indicated by the demographic concentration of French speakers, which varies across the four regions: two northern varieties (NorthWest [NW], NorthEast [NE]) have very high concentrations of francophones while the two southern varieties (Moncton-SouthEast [SE], rural SouthEast [SE]) have lower concentrations.

Many studies of rhythm in English, a stress-timing language, report that contact varieties are less stress-timed – that is, more syllable-timed – than varieties spoken by monolingual speakers of British or American English (Fuchs, 2016; Gut, 2005; Low et al., 2000; Szakay, 2008; Thomas & Carter, 2006). Similarly, studies of rhythm in French, a syllable-timing language, reveal that speakers of contact varieties have less syllable-timed speech than Franco-dominant speakers (Fagyal, 2010; Fagyal & Torgerson, 2018). A notable exception is rhythm in Ontario French (Kaminskaia et al., 2016): speakers in regions where there is a higher degree of contact with English have a more syllable-timed rhythm than those from regions with a lower degree of contact. Our hypothesis is that southern varieties in New Brunswick, which have a greater degree of contact with English, will display some effects of stress-timing and will be less syllable-timed; northern varieties, which have less contact with English, will be more syllable-timed.

Speech materials are from a corpus used for research on the automatic speech recognition of New Brunswick French (Cichocki et al., 2008). The corpus consists of recordings by 140 native speakers of French from the four regions. Speakers read a list of ten sentences; two of these sentences were retained for the study. Durations of all segments (in msec) were extracted for each speaker using Praat. Rhythm was measured with two rhythm metrics: the proportion of vocalic material (%V) and the degree of durational variability in vocalic intervals (VarcoV) (Ramus et al., 1999; White & Mattys, 2007). Statistical analysis is based on ANOVA with post hoc comparisons.

Significant differences among regions were found for both rhythm metrics. Results for the VarcoV metric confirm our hypothesis: the NW variety has the smallest variability in vocalic intervals – and is hence more syllable-timed – while the two southern varieties have larger variability in vocalic interval duration – and are less syllable-timed. However, results for the %V metric do not support our hypothesis: it is the two southern varieties, in particular the ruralSE, that are the most syllable-timed because they have the highest %V scores; the NW variety has the lowest %V scores and is less syllable-timed. The NE variety has an intermediate position on both metrics.

An explanation of the two observed patterns is presented in terms of a multidimensional model of rhythm (Loukina et al., 2011; Nolan & Asu, 2009) which proposes that a variety can simultaneously tend toward syllable timing on one dimension and toward stress timing on another dimension. This study shows that variation in prosodic rhythm in New Brunswick French is associated with the demographic concentration of French speakers in the four regions, but the nature of this association requires further research.

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