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Production of broad and narrow focus in Canadian English

We present the results of a production study that examined the relationship between information structure and prosody. Previous studies suggest that different varieties of English signal information structure differently (Chen et al., 2007; O'Reilley et al., 2010; Féry et al., 2016). The current study investigates how broad and narrow focus is produced in different locations of an utterance in Canadian English. While Canadian English has been often assumed to be similar to Mainstream American English, little attention has been given to empirically testing whether and how they differ. The goal of the study is to examine the acoustic correlates of focus marking in Canadian speakers' production of broad and narrow focus by attempting to replicate Breen et al. (2010) that showed speakers of American English systematically distinguish broad and narrow focus in their production.

Thirty-eight native speakers of Canadian English participated in the experiment. Participants were given a short paragraph describing a situation, followed by a question and an answer about the situation. They were asked to read the answers as if they were in that situation. The questions were designed to elicit different focus breadth (Broad, Narrow) in different locations (Subject, Verb, Object) in the answers. Table 1 summarizes the different conditions with examples.

Focus breadth/location	Question	Answer
Broad Focus (BF)	What's going on?	Miranda is petting a lion.
Narrow Focus on Subject (SF)	Is Mark petting a lion?	No, **Miranda** is petting a lion.
Narrow Focus on Verb (VF)	Is Miranda distracting a lion?	No, Miranda is **petting** a lion.
Narrow focus on Object (OF)	Is Miranda petting a lizard?	No, Miranda is petting a **lion**.

Table 1. Samples of the question-answer pairs. The words in boldface show the location of the corrective narrow focus. They were not printed in boldface for the participants.

Twenty-four answer items each occurred in the four focus conditions (BF, SF, VF, OF) balanced across four lists with a Latin square design. An answer utterance in the BF condition contained three words (defined as S, V, O; the present participles were considered as single words) that were labeled as BF, while an answer utterance in the SF, VF, or OF conditions contained one focused word labeled as NF (Narrow Focus) and the other two words as BG (Background). Of a total of 2,736 words (38 participants x 24 items x 3 words), 288 words produced with disfluency were excluded, leaving a total of 2448 words for statistical analysis (225 additional words were excluded from the f0 analysis due to voice quality issues).

A linear mixed-effect regression model was fit to each of the acoustic correlates – word duration (ms), f0 range (st), mean amplitude (dB). Focus (BF, NF, BG) and location (S, V, O) were included as fixed effects and participants and/or item were included as random effects. The results showed that speakers of Canadian

English used word duration but not amplitude or f0 range, in distinguishing broad and narrow focus. Speakers marked narrow focus using longer duration, unlike the speakers of MAE reported in Breen et al. (2010) who produced longer duration, higher f0 and higher amplitude to mark narrow focus. In addition, significant interactions between focus and location were found in all three acoustic properties (the detailed interpretation of these effects will be discussed in the presentation). In a follow-up Linear Discriminant Analysis, 13 acoustic correlates were used to examine how the focus conditions are distinguished. The results revealed that none of the acoustic correlates significantly contributes to focus discrimination when the aggregate of 38 participant data was analyzed, but different sets of acoustic correlates were identified to be significant discriminants for individual participants. Overall, the results suggest the possibility that focus is marked differently in Canadian English.

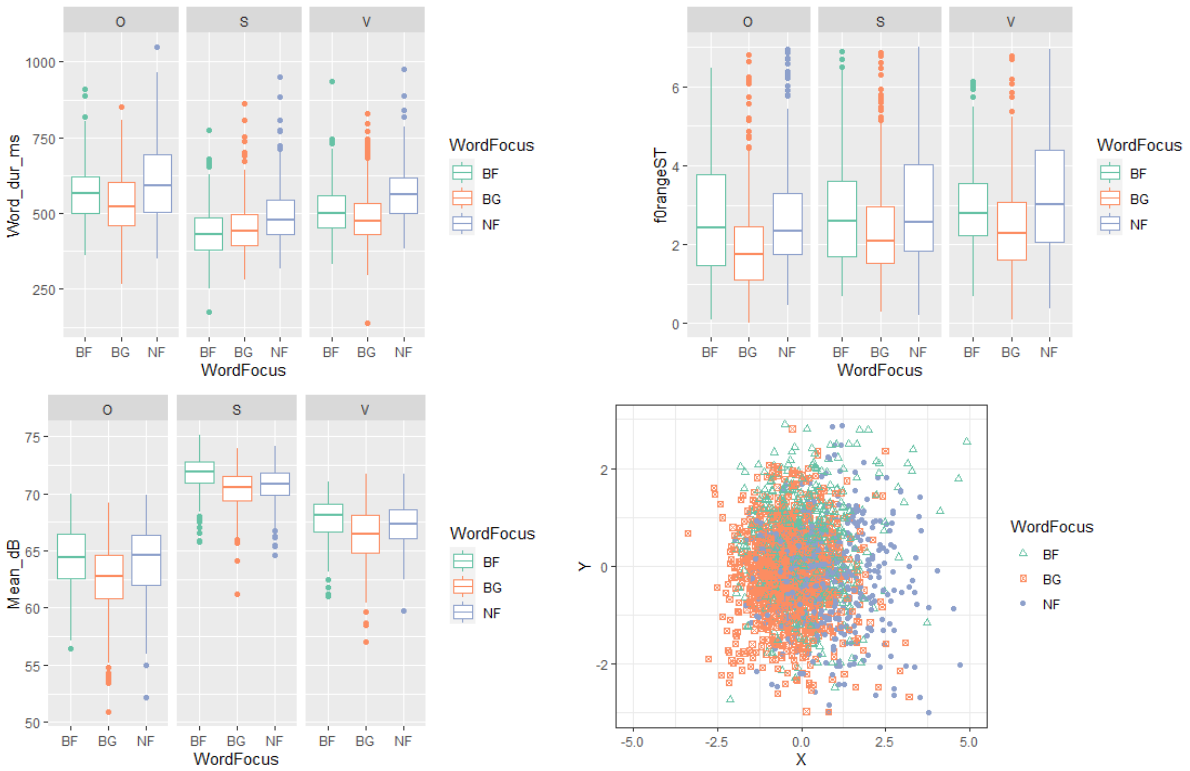

Figure 1. Box plots of word duration (top left), f0 range (top right), and mean amplitude (bottom left) and results of the LSA analysis (bottom right).

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