

Native English Speakers' Perception of Questions Produced by L1 Brazilian Portuguese and L1 English Speakers

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This study seeks to determine whether English speakers perceive Y/N questions uttered by Brazilian Portuguese (BP) speakers as either questions or statements. Neutral Y/N questions in BP end with a falling contour LH*L% (Moraes, 2008; Castelo & Frota, 2016; Castelo et al., 2018) whereas there is a rising contour L*HH% in American English (Hedberg, Sosa & Görgülü, 2014). Broad focus statements in both languages, however, do not differ, with both ending in a falling contour H+L*L% (Castelo & Frota, 2016; Pierrehumbert, 1980; Bartels, 1999). L2 perception studies have shown high accuracy scores in L1 English speakers perceiving their unaltered rising question contours (Liu & Rodriguez, 2012; Trimble, 2013; Marasco, 2022), as well as stimuli that had been low-pass filtered (Grabe et al., 2003; Radu et al., 2018; Passarella-Reis, Gonçalves and Silveira, 2016). As concerns previous studies focusing on L1 BP, Passarella-Reis, Gonçalves and Silveira (2016) investigated native BP speakers' perception of low-pass filtered questions produced by L1 BP and L1 English speakers. Y/N questions uttered by BP speakers had three nuclear contour configurations. The two rising and falling contours (i.e., LH*L%) tended to be perceived as statements, but the low-rise L*!H% uttered by L1 BP speakers was perceived as a Y/N question. Similarly, a recent pilot study (Buzan et al., 2022) revealed that L1 English participants interpreted English questions uttered by L1 BP speakers with a falling contour as statements while questions with the rising contour produced by L1 and L2 English speakers were interpreted as interrogatives. Statements were mostly perceived as such. This study, however, had few participants (N=9), including a mix of L1 BP and L1 English speakers, and did not consider the phonetic and phonological characteristics of the stimuli used. Taking previous research into account, we expect here (1) lower accuracy for questions ending in a falling contour, which are characteristic of beginner L1 BP speakers, than in the ones ending with a rise; (2) high accuracy score for statements. The current study is based on Buzan et al. (2022) and includes the same stimuli and task. Stimuli consisted of (i) 12 questions uttered by L1 BP-L2 English speakers, six of which had the typical BP prosody, whereas the other six ended with a rising contour; (ii) five questions uttered by English speakers (three American and two British); (iii) 10 statements, of which five were uttered by BP speakers and the remaining five by American (N=2) and British (N=3) participants. All sound files were low-pass filtered in Praat (Boersma, P.; Weenink, D., 2024) so that participants only heard the prosodic contour of the utterances. Stimuli were phonologically annotated using ToBI (Beckman & Hirschberg, 1994) and the F0 max and min associated with the initial pitch accent and the nuclear contour were acoustically analysed to trace correlations between accuracy and L1 of the speakers. 21 native Canadian English speakers participated in the study, which consisted of a forced choice sentence identification task in which participants listened to 27 stimuli and had to indicate whether the utterance was a statement or a question. Accuracy was contrast coded and analysed using binomial logistic mixed effect models with sentence type, pitch accent, nuclear contour and L1 of the speaker as independent variables and participant as a random factor. Results showed that, compared to questions, statements had a higher inaccuracy rate than expected ($\beta = -2.94322$; $z = -4.684$; $p < .001$) and accuracy was the lowest when the utterance ended with a falling nuclear contour ($\beta = -1.3725$; $z = -2.017$; $p = 0.04$). This study adds on to the shift in methodology and philosophy in L2 speech on perception and production, focusing on the prosody of nonnatives in a field that has been mostly dominated by research on segmental acquisition (Bent, T.; Baese-

Berk, M., 2021). Results have clear implications for teaching, since they show that questions uttered by L1BP-L2 English speakers may be interpreted as statements by L1 English speakers.

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