# Acoustic [voice] correlate variation by dialect: Data from Venezuelan Spanish

The present study is an investigation of acoustic correlates corresponding to the category [voice] in two dialects of Venezuelan Spanish. The Andean mountain dialect Mérida (MER) and Caribbean coastal dialect Margarita (MAR) are thought to differ systematically in the phonetic implementation of the Spanish phonological stop series along the lines of lowland and highland divides commonly reported for Latin American Spanish (Canfield, 1981; Lipski, 1994). Specifically, MER has been characterized by a greater percentage of occlusive pronunciations, MAR by more fricative and/or approximant realizations of phonological stops. To test what repercussions these differences in consonant articulation have on the acoustic correlates that encode [voice], a production experiment was run.

Informants were 25 adult monolingual speakers of Venezuelan Spanish from the areas of El Tirano (Margarita Island) and San Rafael de Mucuchíes (Mérida state). The materials were 44 CV syllable prompts designed to elicit a nonsense response containing the word *son* + a target word with initial and medial stop consonants surrounded by the same vowel and with stress held constant (ex/ “Son burúbu”, “Son toróto”). The task was divided into four blocks: two training blocks, an unspeeded block and a speeded block.

Recording took place in the field. Informant responses were recorded using a Shure head-mounted dynamic microphone and a Marantz PMD 660 steady-state recorder. The responses were initially recorded onto a compact flash card and were later transferred to an external hard drive via a Macintosh G4 PowerBook. Word-initial and word-medial target syllables were analyzed separately using Wavesurfer speech analysis software. Word-initial target syllables were analyzed with respect to the following: consonant closure duration, VOT, %VF, RMS, F1 onset frequency, F0 contour, and burst. Word-medial target syllables were analyzed for the same measures as in the word-initial contexts, with the inclusion of preceding vowel duration and CV ratio.

Statistical analysis using a linear mixed model ANOVA tested for fixed effects of *voicing category*, *dialect* and *condition* (speeded/unspeeded) and interactions of *voicing category * dialect* and *dialect * condition*. Results showed that the dialects MER and MAR vary significantly in RMS. In addition, the following correlates were significant for the interaction of *voicing category * dialect*: consonant duration, VOT, %VF, RMS, CV ratio and burst. Generally, the nature of the differences indicates a greater separation between [± voice] values in MER than in MAR (notably divergent are VOT and RMS). The difference between dialects was more salient in the [- voice] category. These results imply that while the same acoustic correlates of [voice] are operative in both fortis and lenis dialects of Spanish, [± voice] categories relate to one another differently. Furthermore, with regard to prosody and rate of speech, most significant differences in *condition* occurred in initial position while most significant differences in the interaction of *voicing category * dialect* were linked to medial position. The results of this study are relevant to current research on the specifics of dialectal variation in consonant systems. They also have wider implications for the general mapping of phonetics to phonology in speech.

Selected Readings


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