A sociophonetic analysis of perception of sexual orientation in Puerto Rican Spanish

Sara L. Mack

Department of Spanish and Portuguese Studies, University of Minnesota – Twin Cities, USA; mack0185@umn.edu

A growing number of studies have explored possible links between phonological variation and listener evaluations of speaker sexual orientation in men’s speech. These investigations have examined the influence of acoustic factors such as pitch range and pitch variability (Gaudio, 1994; Smyth et al., 2003), production of sibilants (Munson et al., 2006; Smyth et al., 2003), and various aspects of vowel production including both average F1 and F2 frequencies, and overall vowel-space expansion (Munson et al., 2006; Pierrehumbert et al., 2004; Podesva et al., 2001) on listener perceptions of speaker sexual orientation. In addition, studies have investigated relationships between perceptions of sexual orientation and perceptions of other speaker characteristics such as height, speech clarity (Babel & Johnson, 2006; Munson et al., 2006), perceived personality characteristics (Gaudio, 1994; Levon, 2006) and speech style (Smyth et al., 2003). However, there has been little systematic examination or documentation of such links in languages other than English.

The current study contributes to this area of inquiry by exploring associations between phonetic variation and perception of sexual orientation in Spanish. This study, which is part of a larger project on the association between sociophonetic variation and voice recognition in Spanish and English, addresses three main questions: 1) Do Spanish-speaking listeners uniformly rate speakers’ voices in terms of perceived sexual orientation? 2) If so, what phonetic variation correlates with different evaluations of perceived sexual orientation? And 3) What is the relationship between listener judgments of speaker sexual orientation and other perceived speaker characteristics?

The study was carried out in the San Juan, Puerto Rico, metropolitan area. Twenty different men were recorded saying a list of article-noun combinations. The men were recruited to include a variety of perceived sexual orientations. Eleven native speakers of Puerto Rican Spanish completed a computerized activity in which they listened to these different men’s voices and reported their evaluations of four different speaker variables: age, height, social class, and sexual orientation. In each trial of the experiment, listeners heard six short phrases (la gente, la manera, la vida, el tiempo, el día, el mundo) produced by the same speaker. After listening to the phrases, listeners were presented with a question addressing one of the four variables. For age, listeners provided direct magnitude estimates of age in years. For height, social class, and perceived sexual orientation, listeners responded on a five-point equally appearing interval scale. The presentation order of speakers and questions was randomized.

The f0, F1, and F2 of the stressed vowels in each word, as well as the pretonic /a/ in la manera were measured using the Praat signal-processing software. Formant frequencies were measured in bark-scaled values, and f0 was measured in ERB. The F3 of the /a/ was also measured in Hertz. Average vowel-space expansion was calculated using the bark-scaled F1 and F2 values, based on the mean Euclidian distance formula first presented in Bradlow et al. (1996). Estimates of talkers' vocal-tract length were made by applying the F3 of /a/ to the odd-quarter length formula.

Analyses show that listeners do evaluate unique speakers’ voices as different in terms of perceived sexual orientation. Perceptions of sexual orientation were most strongly predicted by average F2 frequency. Evaluations of the other speaker variables were most strongly predicted by different factors, or combinations of factors: perceived height by f0 and F2 frequency, and perceived social class by F1 frequency. An examination of the relationship between perceptions of sexual orientation and perceptions of height, age, and social class revealed that perceptions of height were correlated with perceived sexual orientation.

Put in broader context, the results of the study suggest that perception of sexual orientation based on phonetic variation is triggered by similar types of cues in Spanish and English. Furthermore, the fact that listener perceptions of speaker sexual orientation co-vary with listener notions of speaker age and height,
even in short, audio-only stimuli, highlights the complex nature of social identities, as well as listeners’ acute sensitivity to social information in speech.

References


