

Recent research has shown that listeners can ascertain a talker's sexual orientation from audio-only speech stimuli. This suggests that talkers manipulate phonetic characteristics, either tacitly or overtly, to convey sexual orientation. Numerous studies have examined the acoustic parameters that relate to perceived sexual orientation (Gaudio, 1994; Levon, 2006; Linville, 1998; Munson et al., 2006; Pierrehumbert et al., 2004; Smyth et al., 2003). One recent study, Munson et al. (2006), suggested that the perception of talker size mediated the perception of sexual orientation. In that study, independently made measures of perceived height and perceived sexual orientation were found to be strongly correlated. This relationship was stronger for women talkers than for male talkers. Subsequent research showed that correlations between perceived height and perceived masculinity and femininity were equally strong for the same talkers. Munson et al. conjectured that talkers manipulate the acoustic characteristics of speech to give the illusion of being larger or smaller, and that listeners gauge talkers' sexual orientation by first estimating their stature from the acoustic characteristics of speech sounds.

The conclusions drawn by Munson et al. (2006) were based on correlations among different measures. The current study further examined the associations among perceived height, perceived sexual orientation, and perceived masculinity/femininity. In this study, perceived stature was manipulated by altering stimuli so that the formant frequencies of the vocalic portions of the stimuli were either greater or less than their original values. Given the predictable relationship between vocal-tract size and vowels' formant frequencies, it was presumed that the talkers would sound larger when formants were scaled lower, and smaller when they were scaled higher. Based on Munson et al.'s

previous finding, it was hypothesized that formant-frequency scaling would affect judgments of sexual orientation and femininity in women's voices more strongly than they would affect judgments' of masculinity in men's voices, and that they would have the smallest influence on judgments of sexual orientation in men's voices.

Stimuli were made by acoustically modifying the stimuli from the perception experiments in Munson et al. (2006). The LPC Resynthesis function in the Praat signal-processing package (Boersma & Weenink, 2006) to scale formant frequencies to 90%, 100%, or 110% of their original values. Twenty listeners rated each male talker's masculinity and sexual orientation, and each female talker's femininity and perceived sexual orientation. Repeated measures ANOVAs examined the influence of talker sexual orientation and formant-frequency scaling on each dependent measure (perceived masculinity, femininity, and men's and women's sexual orientation). Listeners rated gay male talkers as less masculine sounding and more-gay sounding than heterosexual men. Heterosexual women were rated as more feminine and less-lesbian sounding than lesbian/bisexual women. Contrary to predictions, however, formant-frequency scaling was found to affect all four dependent measures equally strongly. Formant-frequency manipulations interacted with talker sexual orientation: differences in masculinity and perceived sexual orientation ratings for gay and straight men were attenuated in the 90% scaled condition. Results support the notion that the perception of talker stature is important to the perception of sexual orientation and sex typicality in speech.