

examined how gender impressions change before and after modifying the fundamental frequency ( $f_0$ ) so that the average  $f_0$  of each utterance was normalized to a common reference value, based on a subjective evaluation using speech samples in Japanese, English, and Thai. Ten Japanese listeners in their twenties participated in the subjective experiment. The results showed that male voices with lower  $f_0$  were perceived as more masculine, while female voices with higher  $f_0$  were perceived as more feminine, indicating that  $f_0$  has a substantial influence on gender impressions. In addition, the findings suggest that impressions are also affected by other acoustic features such as prosody, as well as by the listener's native language and cultural background. Therefore, to shape gender impressions as intended, it is necessary to consider the combined effects of these multiple acoustic features. Building on these findings, this study aims to quantitatively analyze multiple acoustic features, including  $f_0$  and prosodic characteristics, and model them as controllable parameters. The ultimate goal is to establish a voice quality control method capable of producing specific subjective gender impressions for listeners.

**4pSC35. Effects of dialect experience on perceptual adaptation to unfamiliar dialects.** Larisa Bryan (Penn State Univ., State College, PA) and Cynthia G. Clopper (Ohio State Univ., 1712 Neil Ave., Columbus, OH 43210, clopper.1@osu.edu)

Adult listeners adapt quickly to unfamiliar accents, including unfamiliar non-native accents, unfamiliar native regional dialects, and novel accents created by researchers. In the current study, we examined the effects of lifetime dialect experience on perceptual adaptation to one unfamiliar regional dialect and one novel dialect of English. Listeners were exposed to either the regional dialect or the novel dialect through passive listening to a familiar fairy tale. Their adaptation to the exposure dialect was assessed in a four-alternative forced-choice word identification task with eye-tracking. Listener lifetime dialect experience was assessed with an extensive background questionnaire involving residential and travel history. Overall responses in the word identification task were less accurate and slower for target words with ambiguous vowels in each dialect, confirming the unfamiliarity of the two varieties. Participants with higher dialect experience scores, reflecting greater experience with multiple dialects over the course of their lifetime, showed higher accuracy for the novel dialect following exposure to the novel dialect, as well as more looks to the target words for the Southern dialect, regardless of exposure condition. These results suggest that greater lifetime experience with dialect variation leads to more successful short-term perceptual adaptation to unfamiliar dialects in a laboratory setting.

**4pSC36. Voice quality and perception of sexuality and gender in Bay Area English.** Amber Galvano (Linguist., UC Berkeley, Dwinelle Hall #2650, Berkeley, CA 94704, amber\_galvano@berkeley.edu)

This study explores the impact of voice quality on perception of sexuality and gender in Bay Area English. I focus on (i) how degrees of breathiness and creak mediate judgments of an ambiguous voice and (ii) how the listener's understanding of speaker race and education further mediates judgments. 145 LGBTQ+ Bay Area residents heard five versions of three sentences (two speakers), from breathy to creaky, and gave each version open-ended labels, rated their confidence, and then chose forced labels from a drop-down. One of nine race and education labels remained on screen, and sentence block order was randomized. Results show that most listeners misclassified the speakers across conditions, but differently by voice quality, with more variation in sexuality than gender. For sexuality, asexual/aromantic labels were most frequent with very breathy stimuli and lesbian labels with mildly creaky stimuli (Queen 1997, Barron-Lutzross 2018). For gender, non-binary and trans woman labels were most frequent with very creaky stimuli and trans man labels with very breathy stimuli (Henton & Bladon 1988, Whitling *et al.* 2023); non-binary and bisexual labels were most common with college educated displays. These results support that non-modal phonation is perceptually linked to gender non-normativity (Brown & Pillot-Loiseau 2021, Zimman 2021, Merritt 2023) even within LGBTQ+ communities, especially regarding feminized talkers (Mendoza *et al.* 1996), and that sociophonetic perception, much like production, hinges on the intersection of social categories.

**4pSC37. Modeling perception of similarity between two voices using weighted relative entropy.** Jason Zhang (Geffen Acad. at UCLA, 11000 Kinross Avenue, Los Angeles, CA 90095, jzhang17@geffenacademy.ucla.edu)

The goal of this study is to understand what makes two voices sound similar and how to quantify the degree of similarity between two voices. Previously, it was shown that the relative entropy between two voices is able to identify similar voices better than dissimilar voices. It is hypothesized that dissimilar voices differ in acoustics along multiple dimensions, and listeners may apply different weights to different dimensions. In this study, weighted relative entropy was used to model the differential weighting of the different acoustic dimensions. Different weighting functions were explored, and the weighting function parameters were optimized to improve the agreement between the weighted relative entropy and the perceptual similarity scores from a listening experiment. The results showed a moderate improvement in the agreement between entropy-based and perceptual similarity scores, indicating further research is required to identify the optimal weighting function and parameters.

**4pSC38. Tone learning in aging: An encoding-enhanced training paradigm to promote overnight consolidation.** Kangdi Liu (Hong Kong Univ. of Sci. and Technol., The Hong Kong Univ. of Sci. and Technol., Clear Water Bay, Kowloon, Hong Kong, kliubc@connect.ust.hk), Yan Feng (Nanjing Univ. of Sci. and Technol., Nanjing, China), and Zhen Qin (Hong Kong Univ. of Sci. and Technol., Hong Kong, Hong Kong)

Newly learned information is encoded as episodic memories during training and subsequently consolidated during overnight sleep. Previous research has found that Mandarin-speaking younger adults showed improved accuracy in learning novel Cantonese (contour) tones through six-block evening training after 12 h (i.e., overnight consolidation). However, age-related declines in tone encoding and sleep architecture may diminish the effect. Thus, this study examined older adults in two experiments, adopting six and lengthened ten blocks, respectively. Experiment 1 assessed overnight consolidation in older adults using the same paradigm for younger adults. 60 older Mandarin speakers were assigned to evening or morning training groups, matched in terms of sleep, hearing, and cognitive abilities. The key manipulation was that the evening training group slept between the immediate and 12-h delayed post-tests, whereas the morning controls remained awake during this interval. Neither group showed significant accuracy changes across post-tests, suggesting a lack of sleep-dependent consolidation effects. Experiment 2 then tailored a training paradigm, lengthening training to 10 blocks in 60 new participants to enhance encoding. The evening group improved in the delayed post-test compared to the immediate post-test, whereas the morning group maintained performance. Lengthened training enhanced older adults' encoding and facilitated overnight consolidation of Cantonese tones.

**4pSC39. The interplay of semantic predictability and vocabulary knowledge in second-language stress processing.** Donghyun Kim (English Lang. and Lit., Kyungpook National Univ., Graduate School Bldg., 80 Daehak-ro, Buk-gu, Daegu 41566, Korea, donghyun@knu.ac.kr)

Efficient use of predictive context can offset prosodic uncertainty in second language (L2) speech. This study examined how semantic predictability and individual differences in L2 vocabulary knowledge modulate lexical-stress processing during L2 spoken word recognition. Eighty Korea learners of English completed an auditory lexical decision task in which multisyllabic targets—real words or pseudowords created by stress-shifting real words—appeared sentence-final in predictable or neutral contexts. Vocabulary knowledge was assessed with a vocabulary size test. Mixed-effects models assessed response times and accuracy as a function of context, vocabulary size, and their interaction. Results showed that predictable contexts accelerated lexical decisions, and this benefit expanded for learners with larger vocabularies, suggesting that richer lexicons sharpen the use of semantic expectations when stress cues are uncertain. Vocabulary size alone did little for response speed in neutral contexts, implying that vocabulary knowledge and context work in concert rather than additively. Accuracy was high; although influenced by context and vocabulary, it showed no interaction, confirming that timing measures captured the key variation.