

The influence of multiple sources of social information on speech comprehension and evaluation

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Several aspects about an individual including their voice, physical appearance, and biographical information provide cues that can shape listener expectations about that person's speech (e.g., [1, 2]). Prior work has mainly focused on the influence of social information as cued by a singular source. However, people often must integrate multiple sources of social information when forming linguistic expectations. Less research has examined how listeners may reconcile *potentially conflicting* social information about a speaker garnered from multiple sources. For example, while perceived race, as cued by a photo or video, can lead to expectations that someone is an L1 versus L2 English speaker (e.g., [3,4]), simultaneously introducing biographical information about their nationality could cue different expectations regarding their L1 versus L2 English speaker status (e.g., [2]). This study extends past work by representing "speakers" with both photos to cue racialized identity, and with written biographies to cue nationality alongside different voices to ask: how might listeners integrate multiple, perhaps *competing*, sources of social information to inform speech comprehension and evaluation?

64 English-speaking participants transcribed 200 semantically anomalous sentences [5] mixed with speech-shaped noise at a -2 dB signal-to-noise-ratio (SNR), following past work [2]. Participants encountered "speakers" represented with L1 American English or L2 Mandarin-accented English voices and photo-and-written-biography pairings. Photos depicted racially Asian or White women and biographies described a person born and raised in or outside of the U.S. Participants then rated "speakers" on 9-point scales of perceived "foreign-accentedness" and "clarity" of speech. Mixed effects regression models were fit to examine how transcription accuracy and social ratings were predicted by voice, photo, and biography type. Overall, L1 English speech increased transcription accuracy and was rated as less foreign-accented and clearer compared to L2 English speech, as expected (e.g., [6]). Neither photo type, biography type, nor their interaction significantly predicted transcription accuracy, unlike past work (e.g., [2,7,8]). Considered separately, White and not Asian photos and the U.S. rather than non-U.S. biography significantly decreased foreign-accentedness ratings (Figure 1) and increased clarity-of-speech ratings following past work (e.g., [2,3]). Further, photo and biography type significantly interacted in predicting foreign-accentedness ratings: In the L1 and L2 English conditions, speech presented with the U.S. biography rather than the non-U.S. biography and with both photo types was viewed as less foreign-accented, but this difference was larger for White photos compared to Asian photos.

In summary, social ratings indicate listeners can integrate information from multiple sources to inform their speaker knowledge even if the information is conflicting. In particular with foreign-accentedness ratings, White photos and the U.S. biography, a pairing we expected would result in similar expectations of L1 English speaker status, had greater advantage over Asian photos and the U.S. biography, a pairing we predicted would produce conflicting expectations about a speaker's L1 English status. The effects of photo type and biography type for social ratings, however, did not significantly interact with speech type, unlike prior work that demonstrated perceived social congruence between sources mediated the influence of social information (e.g., [7, 9]). Altogether, the current study interestingly does not replicate effects of perceived race (e.g., [7,8,9]) and nationality (e.g., [2]) on speech comprehension though these factors significantly shifted perceived "foreign-accentedness" and "clarity" of speech (e.g., [3]). Though such linguistic assumptions can be drawn, they may not always be reflected in how speech is accurately understood, as discussed in [4], though these beliefs can still impact everyday life for people in other ways (e.g., [10,11]).

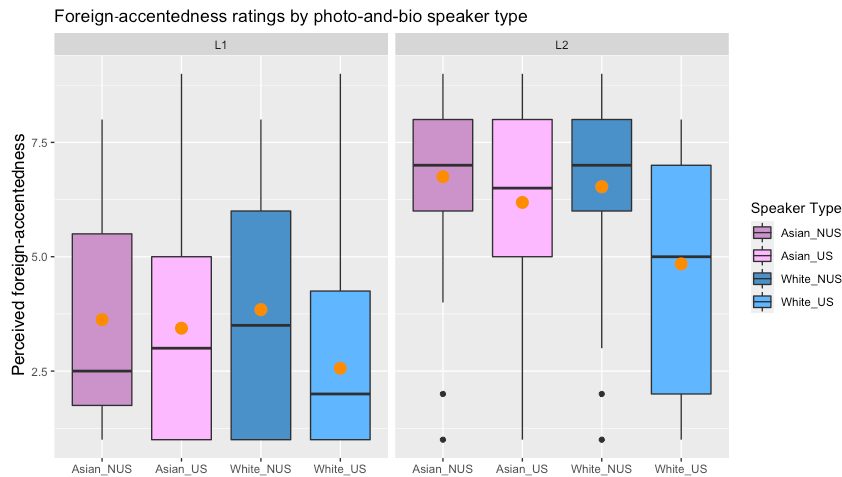


Figure 1. Foreign-accentedness ratings in L1 and L2 English speech conditions by photo-and-bio speaker type (Dark purple = Asian speaker photo with non-U.S. biography (Asian_NUS); Light purple = Asian speaker photo with U.S. biography (Asian_US); Dark blue = White speaker photo with non-U.S. biography (White_NUS); Light blue = White speaker photo with U.S. biography (White_US). Orange dots indicate mean ratings.

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