

The perception of accented English by English learners: Revisiting the interlanguage speech intelligibility benefit

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Little work has examined how L2 listeners cope with acoustic variability, but several studies have concentrated specifically on how L2 learners perceive their own L2 accent, and describe an *interlanguage speech intelligibility benefit* (ISIB). Two distinct effects have been observed. First, low-proficiency Mandarin listeners, compared to native English listeners, more likely endorsed Mandarin-accented words being the intended ones [1], defined as an ISIB-L (listener). In addition to the ISIB-L, [2] also found that that Mandarin listeners endorsed Mandarin talkers' word productions more highly than native English talkers' productions, defined as an ISIB-T (talker). Critically, however, both studies only tested voicing in word-final obstruents, which represents a unique type of cross-linguistic cue-mapping in Mandarin-L1 learners' perception and production of English. Moreover, neither study explored the inconsistent presence of ISIB-T. Finally, when other phonological processes have been tested, such as vowel neutralization, results are mixed: For example, neither Mandarin [3] nor Korean [4] listeners showed advantages over English listeners in identifying Mandarin- or Korean-accented (respectively) English words. The current study investigates how different levels of neutralization can affect ISIB-L and ISIB-T in both vowels and consonants. Specifically, we explored Mandarin and English listeners' perception of Mandarin-accented English words involving three sound contrasts: [æ] vs. [ɛ], [ɪ] vs. [i], and [θ] vs. [s]. These contrasts show varying degrees of neutralization in Mandarin-accented speech such that the first segment (English-only segment) in each pair is produced more like the second segment (English-Mandarin common segment) to varying degrees.

We recruited 45 Mandarin natives, but just the 15 highest- and 15 least-proficient individuals in English were sampled (HP and LP listeners, respectively), defined by both self-ratings and scores on a perception test. Fifteen native English listeners were also recruited (NE listeners). In addition, a similar procedure was done to recruit HP, LP, and NE talkers using native English listeners' accent ratings to define the former two groups ($n = 6$ per group). Participants identified target auditory words in a 2AFC task, where each word on the screen was one of the minimal pairs containing the target segmental contrast (e.g., "bed" and "bad").

Results showed an ISIB-L, but just for vowels. That is, for LP talkers, LP listeners perceived [æ] and [ɪ] as their intended targets more than both HP and NE listeners (p 's $< .05$). Acoustic analysis suggests that vowel neutralization occurred only in LP talkers' speech, and the degree of vowel merger was a significant predictor accounting for perceptual accuracy: As it increased, LP listeners' performance got better and better than NE listeners. Results also showed no ISIB-T: Instead, LP listeners performed better when vowels were produced by NE or HP talkers compared to LP talkers (p 's $< .01$). Within LP listeners, there was also a significant decrease of accuracy as they became more merged ($p < .01$). Neither ISIB effect was found for the consonant [θ], which also showed the least merger in production.

Results suggest two things. First, ISIB-L occurs because of LP listeners' greater probability of accepting non-native vowel realizations. Second, the null ISIB-T indicated LP listeners still outweighed native-like vowel tokens over non-native ones in their perception, confirming their capability of detecting the extra acoustic distance in NE speech. This study has advanced the literature by showing that ISIB effects were not a product of L2 learners' incapability of distinguishing L2 segment pairs, but is derived from the mapping between phonetic realizations of phonemes in L2 perception and production.

References

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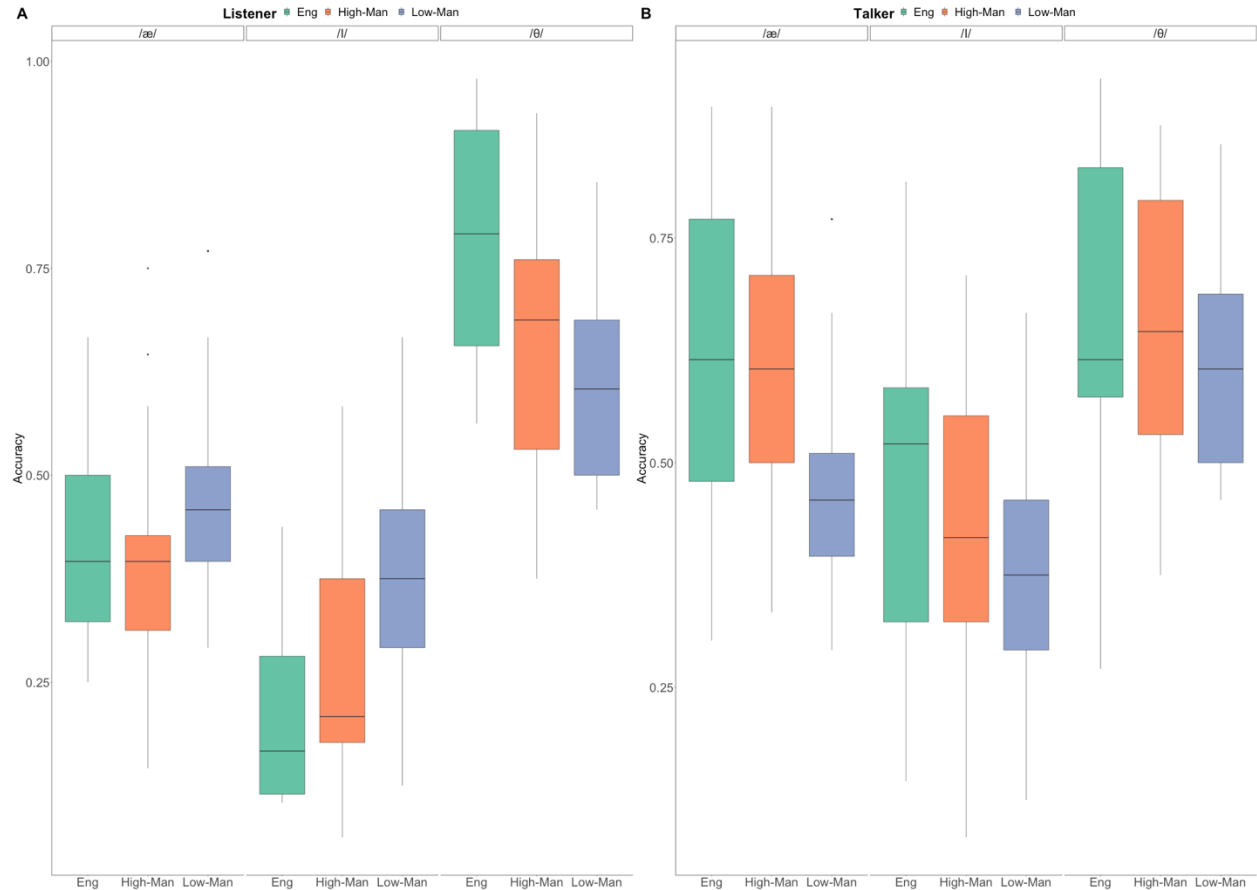


Fig. 1. Plot A: Accuracy by the three listener groups when perceiving strongly Mandarin-accented English speech produced by low-proficiency Mandarin talkers. Plot B: Accuracy by low-proficiency Mandarin listeners for English speech produced by the three talker groups. The overt ISIB-L for the two vowels but not the consonant is displayed in Plot A, while the null ISIB-T across the three segments is demonstrated by Plot B.