Laryngeal Feature Contrast Processing in L2 Stop Perception
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Languages like French use voicing to distinguish between stops, e.g., /p/ vs. /b/, while languages like Mandarin use only aspiration to distinguish between stops (e.g., /p/ vs. /p^h/). However, some languages like Bengali use voicing and aspiration both (Hai & Ball, 1961). English also uses both voicing and aspiration cues to distinguish between stops, but the salience of each cue depends on the context in which those stops are found. In prevocalic position, English speakers usually contrast stops with aspiration, while contrasting stops with closure voicing in intervocalic position. Given the context dependence of these cues, it is unknown how a speaker of English would process the aspiration and voicing features of Bengali.

Some theories of second language speech perception posit that speakers map a non-native sound to their closest counterpart in their native language, e.g., Flege (2005). However, such theoretical predictions generally do not take the context specificity of cues to a contrast into consideration. Extrapolating from the principles of Flege (2005), we hypothesized that English listeners would be more sensitive to aspiration contrasts between Bengali stops in prevocalic position and to voicing contrasts between Bengali stops in intervocalic position.

We tested these hypotheses by testing native English listeners' identification and discrimination of the four Bengali stop categories in both prevocalic and intervocalic positions. These experiments were thus similar to previous work by Hayes-Harb & Barrios (2022) and Jackson and Archibald (2010), who independently looked at the perception of Hindi stops by native English speakers in prevocalic position, using an identification task and a discrimination task, respectively. Both of these studies had fundamentally similar predictions to our own. However, both of those studies tested stop phonation type perception with only one place of articulation each, and in only one vocalic context. The current study explores native English listeners' perception of both bilabial and velar stops in Bengali--with four different phonation types--in both prevocalic and intervocalic contexts.

Initial results from the identification task indicate that voiceless aspirated stops are consistently identified as "fortis" stops, while voiced unaspirated stops are always identified as "lenis" stops in both contexts. However, listeners identify voiceless unaspirated stops as fortis more often in intervocalic position than in prevocalic position. Voiced aspirated stops, on the other hand, tend to be identified more as lenis in intervocalic position. While neither of these tendencies is absolute, both trends are consistent with our initial predictions that aspiration would cue "fortis" responses in prevocalic position, and voicelessness would cue "fortis" responses in intervocalic position. The preliminary results thus suggest that there is not a simple, one-to-one translation of Bengali to English stops, because vocalic contexts do matter when English listeners categorize stop phonation type contrasts from a second language.

References

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