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Expanding the set of acoustic features of the post-vocalic voicing contrast in English

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The literature on post-vocalic voicing contrasts indicates that no single acoustic characteristic or perceptual cue captures the phonological distinction [e.g, Nittrouer 2004]. Previous perceptual studies examined such acoustic characteristics as vowel duration, percent and duration of closure voicing, formant and F0 transitions. Detailed acoustic examination reveals additional variation. It is hypothesized that these understudied acoustic characteristics also play a role in the family of voicing cues. In the present study, two laryngeal characteristics are measured and modeled: glottalization (here, an abrupt drop in rate of vocal fold vibration by tensed vocal folds) and a sharp amplitude drop (due to abrupt spreading of vocal folds). Examination of American English data reveals that speakers tend to have at least one of these two characteristics in their final voiceless obstruents, but generally not both. Results suggest a process of laryngeal enhancement of final voiceless obstruents in addition to the traditional cues of vowel duration, formant transitions, etc. Implications for the categorization of laryngeal features and trading relations within the family of final voicing cues are discussed.