

Abstract for the Acoustical Society of America

Structural constraints in the perception of English stop-sonorant clusters.

Native-language phonemes combined in a non-native way can be misperceived so as to conform to native phonotactics; e.g., English listeners are biased to hear syllable-initial [tr] rather than the illegal [tl] (Massaro & Cohen 1983, Pitt 1998). What sort of linguistic knowledge causes phonotactic perceptual bias? Two classes of models were compared: unit models, which attribute bias to the listener's differing experience of each cluster (such as their different frequencies), and structure models, which use abstract phonological generalizations (such as a ban on [coronal][coronal] sequences). Listeners (N=16 in each experiment) judged synthetic 6x6 arrays of stop-sonorant clusters in which both consonants were ambiguous. The effect of the stop judgment on the log odds ratio of the sonorant judgment was assessed separately for each stimulus token to provide a stimulus-independent measure of bias. Experiment 1 compared perceptual bias against the onsets [bw] and [dl], which violate different structural constraints but are both of zero frequency. Experiment 2 compared bias against [dl] in CCV and VCCV contexts, to investigate the interaction of syllabification with segmentism and to rule out a compensation-for-coarticulation account of Experiment 1. Results of both experiments favor the structure models. (Supported by NSF IGERT.)