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Dynamics of speech sound categorization for continua defined by spectral vs. duration contrast

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Abstract: Dynamic measures of performance often reveal graded features of language comprehension, even when task demands are categorical in nature. Here, we examine online measures of arm-movement trajectories in a word recognition task. Stimuli comprised two vowel continua of natural-sounding synthesized words: A duration continuum ("pen" to "pan") and a spectral continuum ("pin" to "pen"). Analyses of word identification based on the final decision reached on each trial reveal categorical behavior in vowel perception along each continuum. However, measures of mouse movements toward the unselected alternative suggest that stimuli at the "long" end of the duration continuum are temporarily perceived to be more consistent with the shorter vowel (/E/) even for stimuli eventually classified as the longer vowel (/ae/) on 100