DAGA2014/210
Variance in Localization of Click Sounds with a Preceding Distractor

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The perceived location of a click-sound can be affected by the presence of a preceding distractor click coming from a fixed, a priori known location [Kopco et al., JASA, 121, 420-432, 2007; Tomoriova et al.; ARO Abstract #655, 2012]. The effect is observed over a range of distractor-to-target stimulus onset asynchronies (25-400ms) and it persists even for subsequent trials on which the target is presented without a preceding distractor (i.e., causing a "contextual" effect). Factors including precedence-like and precedence-build-up-like mechanisms, perceptual segregation/grouping, and adaptation due to repeated presentation of the stimuli likely contribute to the effect. Here, we present the analysis of how response variance is affected by the target-to-distractor SOA and relative frequency of distractor occurrence. In our experiment, subjects localized clicks in sound-attenuated booth with a setup similar to previous studies. The target clicks were presented either alone or were preceded by an identical distractor click coming from a fixed location. Both the immediately preceding distractor and the context affected performance. Increases as well as decreases in response variance were observed relative to target-only baseline runs, depending mainly on SOA. These results illustrate how different processing mechanisms play a role even for simple scenes with well segregated stimuli.

Number of words in abstract: 200
Technical area: Psycho-acoustics
Special session: no reference to a structured session
Presentation: No preference
Registration: 239140188 - Hládek Ľuboš - 0 0 not paid