

Contextual Shifts in Sound Localization Induced by an a priori-known Distractor

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A previous study of sound localization with a preceding distractor found that the responses were biased away from the distractor location even on the interleaved baseline trials on which the target was preceded by no distractor [Kopco et al., JASA, 121, 420-432, 2007; Tomoriová et al., ARO Abstract #1019, 2009].

The current study measured the dependence of this contextual plasticity on the distractor characteristics. Subjects localized 2-ms frozen noise bursts presented either in the left (-11° to -79°) or the right (11° to 79°) hemifield of the frontal horizontal plane, accompanied on some trials by an distractor. The distractor either preceded or followed the target (by up to 400 ms), it varied in its spectro-temporal characteristics (single click, multiple clicks, noise), or in its location. Performance was compared to baseline blocks that only contained no-distractor trials.

Contextual shifts of 5° away from the distractor location were induced for targets near the distractor, independent of whether the distractor preceded or followed the target. The effect was modulated by the distractor type and location. This pattern of results suggests that the contextual plasticity is likely caused by multiple factors, including distractor-induced short-term adaptation of the spatial representation, perceptual anchoring of the a priori known distractor location, and/or an interaction between the perceived target and distractor locations.

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