Localizing a speech target in a multitalker mixture.

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Despite the importance of spatial hearing in everyday listening, little is known about the accuracy of sound localization in a complex mixture of sounds. Here we measured, for the frontal audio-visual horizon, how accurately listeners could localize a female-voice target amidst four spatially distributed male-voice interferers in a moderately reverberant room. To examine whether listeners can make use of *a priori* knowledge about the configuration of the scene, we compared performance when the interferer locations were fixed (in one of five known patterns) to when the locations varied from trial to trial. The presence of interferers disrupted target localization, even after accounting for reduced target detectability. Randomizing the interferer locations had a moderate influence, degrading performance in some configurations but improving it in others. All effects were magnified when the target-to-interferer intensity ratio was reduced. The results confirm that spatial perception is disrupted by interfering sounds, and that this disruption is modified to some extent by listeners' expectations about the spatial arrangement of the scene. [Supported by HFSP, NIH, VEGA, ARC and a Univ. of Sydney Postdoctoral Fellowship.]