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Spatiotemporal interactions between audition and vision

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It is well known that spatial auditory cues can affect performance on spatial visual tasks. One example is crossmodal cueing: response times for a visual spatial discrimination task are shortened when the location of the visual stimuli is cued auditorily, and prolonged when an invalid location is cued. Another example is auditory support of visual search: we normally find lower search times for visual items when the location of the target item is indicated by an auditory cue. In our research we have explored two questions: one related to crossmodal cueing, and the other to audiovisual search. In our crossmodal cueing paradigm we have looked at the interaction between (exogenous) cueing and endogenous information given before each trial. In this way we wanted to determine whether auditory cues are able to capture visual attention even when this attention has already been focused endogenously. In our audiovisual search paradigm we have studied whether nonspatial auditory cues, presented simultaneously with the visual target item, are able to improve visual search. Because of the temporal synchrony, the auditory stimuli do not act as actual cues but they are probably fused with the visual stimuli into an integrated percept.