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Effect of sound spatialisation on multitasking in remote meetings

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Participants in a teleconference often multitask during meetings, e.g. they work on a text-based 'foreground' task whilst listening in the 'background' for a topic of interest to appear. Audio material should therefore be presented in a manner that has the smallest possible impact on the foreground task without affecting topic detection. Here, we ask whether spatialised audio presentation of a meeting is less disruptive than the single-channel mixture of talkers that is normally used in teleconference audio. Head-related impulse responses are used to synthesise a stereo signal in which each meeting participant is placed at a spatially distinct location. A number of talker location configurations are used, and we examine how these impact upon a text-based foreground task: finding all letter 'e' occurrences in a block of text as quickly as possible. We also examine the effect of listening task (e.g., 'listen for keyword x' versus 'listen for keyword x spoken by talker on left') and record listener preferences for audio presentation style. Our results suggest that single-channel and spatialised audio are equally disruptive when listeners are unaware of the audio presentation style. We also report studies in which presentation type and target direction / gender are cued.