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Object formation versus object selection

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Auditory scene analysis is intricately linked to our ability to understand one acoustic source amidst competing sources. However, studies of selective attention often fail to distinguish between the roles of object formation (estimating the spectro-temporal content of a particular auditory object) and object selection (determining which object will be the focus of attention) in performance. Part of the difficulty in trying to disentangle these effects is that they are intimately related. However, listeners in a selective attention task often report sound elements that are similar in a sound dimension they know is task irrelevant when trying to selectively attend to a different sound attribute (e.g., location, pitch, intensity, timbre). Such results suggest a model of selective attention in which the focus of attention is an auditory object that is formed through interactions between automatic grouping processes and top-down selection. A conceptual model of these interactions will be presented along with data in support of this framework. [Work supported by AFOSR and ONR.]