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Attentional Resource Allocation in Multisensory Processing is Task-dependent

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Abstract: Human information processing is constrained by limited attentional resources. A matter of ongoing debate in multisensory research is whether attentional resources are shared or distinct across sensory modalities. Previous research suggested that the type of tasks that humans perform in separate sensory modalities determines whether attentional resources are shared or distinct across sensory modalities. Here, we investigated the relation between attentional resources and the performed type of tasks in four experiments using a dual task paradigm. We found shared attentional resources for vision, haptics and audition when two purely spatial tasks were performed in separate sensory modalities (Experiment 1 & 2) while we found distinct attentional resources for the same sensory modalities when a spatial task was performed together with a discrimination task (Experiment 3 & 4). Overall, our findings suggest that the distribution of attentional resources is operating at a task-level independent of the involved sensory modalities.