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## **Configural representations in spatial working memory**

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**Abstract** In everyday life, at any given moment, people keep track of the locations of a number of objects surrounding them and such spatial information guides our movements. At a theoretical level, the nature of such spatial representations in working memory, how they are formed and rehearsed across short time intervals, has not been systematically explored. However studies of scene change detection in which people have to determine whether two consecutively presented scenes are identical have indicated that people are sensitive to the spatial layout of objects within scenes (Simons, 1996). Similarly, Jiang and colleagues (2000) have demonstrated that people incidentally encode the layout of visual objects. In our studies we were specifically interested in how people represent location information in working memory. In particular, our focus has been on whether spatial locations are represented as part of larger configurations, or whether they are presented independently, as if in isolation, with only absolute positional information preserved. In our initial set of studies participants were asked to recall sequentially presented target locations. Through detailed analyses of their error at locating target locations and comparison of their error patterns to simulated data representing maintenance of only absolute positional information, we concluded that people preserve configuration information above and beyond absolute location information. In two separate studies employing the serial spatial recall paradigm, we further investigated how sequence length and sequence complexity influence spatial recall. In particular, we found that as sequence length increased the resolution of representations decreased, suggesting that people encode longer sequences more coarsely. Also, we demonstrated that for sequences of equal lengths, sequence complexity did not influence the resolution with which each targets was recalled. However, for those same sequences, sequence complexity was shown to negatively influence how well the configuration information was preserved. I will conclude by briefly summarizing some evidence indicating that such configural representations in spatial working memory are automatically formed when people are presented with visual displays.

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