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Storing objects in visual short-term memory: Location is key

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Abstract: There are two views that describe the capacity of visual short-term memory (VSTM): one that posits that capacity has a strict upper limit, and the other that states that capacity has no fixed upper limit. Here we attempt to reconcile these views by measuring capacity of VSTM in two experiments where the number of objects (cubes) and the number of features (colors) in an object were varied independently. In the first experiment, we used a single probe at the center of the screen, and found that the total number of features determined accuracy. In the second, we used a whole-display match-to-sample paradigm, and observed that the total number of objects determined accuracy. These findings suggest that VSTM uses a spatially located binding mechanism whose benefit is lost when the probe and target locations differ. We are currently running new experiments to test this hypothesis more stringently.