Does the binding of a feature into a multidimensional object protect it from inferference in visual working memory?

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Is the elemental unit of visual working memory (VWM) storage the feature or the object? To address this question, we leveraged the fact that behavioral and neural measures of the precision of single-feature stimuli drop monotonically with increasing load. Would this load effect be decreased if the features being tested were part of a multidimensional object? That is, does being bound to an object partly insulate a stimulus feature from within-category interference? To assess this, we tested subjects with two procedures. In the first, two multidimensional objects (colored dots drifting coherently in one direction) were presented as memoranda, followed by a retrospective cue instructing the subject to retain either one of the two objects, or one of the two features (i.e., the color or the direction of each stimulus). In the second procedure subjects were presented two unidimensional stimuli as memoranda (either two colors, two motion directions, or one color and one motion direction) and then probed. Thus, all conditions were at a load of two, with varied levels of “boundedness” and category homogeneity. Precision of VWM for color was lower than for motion, and color VWM was not sensitive to either manipulation. The precision of VWM for motion, however, was highest in trials in which the second memorandum was a color, regardless of whether the two were bound into a single object or presented as two distinct items. These results suggest that interference between individual features, rather than objects, may be the most important factor in determining VWM capacity limitations.