**Investigating spatial specificity in the interaction between working memory and visual perception**

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Content in visual working memory has been shown to impact ongoing visual processing in a stimulus-specific manner, suggesting a common neural substrate supporting both visual perception and working memory maintenance. However, it remains unclear whether working memory for visual features retains a representation of its spatial location at encoding or whether the representation of the feature is abstracted away from the spatial context in which it is encountered. The current study investigated whether spatial location modulates working memory’s interaction with perception through a set of three psychophysical experiments. In Experiment 1, subjects performed a perceptual discrimination of orientation while concurrently holding an orientation in working memory. Memory content boosted the perceived contrast of the discriminandum when the two matched in orientation, but only when their location also overlapped. Conversely, memory precision declined when the location of memorandum and discriminandum mismatched, suggesting that location mismatch might disrupt context binding in working memory. To ensure that this observed effect reflects low-level perceptual interaction, in Experiment 2 the task demands in the memory and perceptual tasks were set to be entirely orthogonal and thus removing potential decision biases. We found that this location-specificity held in both the contrast perception and the memory report. Experiment 3 tested whether context-binding demand influences the spatial extent of this interaction. We introduced a condition that discouraged the binding of feature and location by shifting the memory probe to a non-matching, central location, and found that working memory content enhanced contrast perception of the discriminandum at both overlapping and non-overlapping positions, suggesting a spatially non-specific effect. Overall, these results demonstrate that, depending on the context-binding demand, working memory of features can be optimized to either retain a representation of its spatial location or not, and highlight the flexible encoding of working memory.