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COMPETITION AND CONTROL DURING WORKING MEMORY

Anastasia Kiyonaga

University of California, San Diego

Mark D'Esposito

University of California, Berkley



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Competition and Control during Working Memory

Elements in Perception

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Anastasia Kiyonaga
University of California, San Diego

Mark D'Esposito
University of California, Berkeley

Author for correspondence: Anastasia Kiyonaga, akiyonaga@ucsd.edu

Abstract: Working memory and perceptual attention are related functions, engaging many similar mechanisms and brain regions. As a consequence, behavioral and neural measures often reveal competition between working memory and attention demands. Yet widespread debate remains about how working memory operates, and whether it truly shares processes and representations with attention. This Element will examine local-level representational properties to illuminate the storage format of working memory content, as well as systems-level and brain network communication properties to illuminate the attentional processes that control working memory. The Element will integrate both cognitive and neuroscientific accounts, describing shared substrates for working memory and perceptual attention, in a multilevel network architecture that provides robustness to disruptions and allows flexible attentional control in line with goals.

Keywords: attention, cognitive control, sensory recruitment, visual short-term memory, working memory

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