Integration without awareness: expanding the limits of unconscious processing.

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Abstract:

Human conscious awareness is commonly seen as the climax of evolution. However, what function-if any-it serves in human behavior is still debated. One of the leading suggestions is that the cardinal function of conscious awareness is to integrate numerous inputs-including the multitude of features and objects in a complex scene-across different levels of analysis into a unified, coherent, and meaningful perceptual experience. Here we demonstrate, however, that integration of objects with their background scenes can be achieved without awareness of either. We used a binocular rivalry technique known as continuous flash suppression to induce perceptual suppression in a group of human observers. Complex scenes that included incongruent objects escaped perceptual suppression faster than normal scenes did. We conclude that visual awareness is not needed for object-background integration or for processing the likelihood of an object to appear within a given semantic context, but may be needed for dealing with novel situations.

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