ZMATH 2016c.00163

Fornaciai, M.; Cicchini, G. M.; Burr, D. C.

Adaptation to number operates on perceived rather than physical numerosity.

Cognition 151, 63-67 (2016).

Summary: Humans share with many animals a number sense, the ability to estimate rapidly the approximate number of items in a scene. Recent work has shown that like many other perceptual attributes, numerosity is susceptible to adaptation. It is not clear, however, whether adaptation works directly on mechanisms selective to numerosity, or via related mechanisms, such as those tuned to texture density. To disentangle this issue we measured adaptation of numerosity of 10 pairs of connected dots, as connecting dots makes them appear to be less numerous than unconnected dots. Adaptation to a 20-dot pattern (same number of dots as the test) caused robust reduction in apparent numerosity of the connected-dot pattern, but not of the unconnected dot-pattern. This suggests that adaptation to numerosity, at least for relatively sparse dot-pattern, occurs at neural levels encoding perceived numerosity, rather than at lower levels responding to the number of elements in the scene.

Classification: C30 C80 F20
Keywords: vision; number; adaptation; segmentation; numerosity discrimination
doi:10.1016/j.cognition.2016.03.006