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Similar adaptation effects on detection and localization of optic flow patterns

B M Harvey, O Braddick

Many models of optic flow processing (eg Perrone and Stone, 1998 *Journal of Neuroscience* **18** 5958 - 5975) suppose that common neural mechanisms are used to detect optic flow patterns and localize their centres. However, recent neuropsychological (Beardsley and Vaina, 2005 *Journal of Computational Neuroscience* **18** 55 - 66) and neuroimaging evidence (Koyama et al, 2005 *Current Biology* **15** 2027 - 2032) suggests a separate cortical area specialized for localizing the centre of flow patterns, possibly important for monitoring self-motion. This is consistent with our findings (Harvey and Braddick, 2006 *Perception* **35** Supplement, 238) that spatial integration properties for detecting and localizing are quite different. We examined the relation between detection and localization by adapting subjects to rotating, expanding, or contracting motions, and measuring effects on coherence thresholds for both detection and localization tasks. When adaptation and test directions were opposite (eg expansion vs contraction, clockwise vs anticlockwise rotation), thresholds were elevated far more for rotating than for contracting test patterns. Overall, adaptation had similar effects on detection and localization tasks, suggesting that both depend on a common processing stage where adaptation effects occur.

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