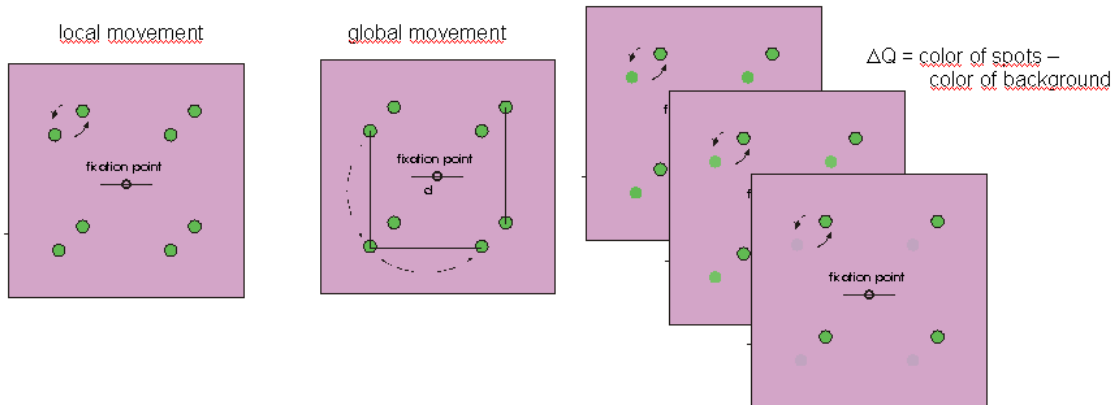


Colour induced enhancement of perception of global versus local movement



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INTRODUCTION.

Local and global perception of moving objects was studied psychophysically and neurologically [1,2]. Authors hypothesize prevalence principles of perceptual “local” vs. “global” grouping that depends on stimuli geometry, lightness polarity, complexity. Previously elementary elements were gray-scaled and arranged in groups in various manners. We introduced: a) colour contrast between stimuli groups and between stimuli and background, b) viewing eccentricity of scene. We used spot doublets that can be perceived rotating around their symmetry centre (“local” motion) – organized at vertices of two squares that can be perceived sliding over each other along circular paths (“global” motion). Doublets were shown as red and green spots, further the colour saturation was minimized during trials.

EXPERIMENTAL

$L = 80 - 140 \text{ cd} / \text{m}^2$
 $\omega = 90 - 270 \text{ deg} / \text{sec}$
 size of stimuli dots = 1 cm
 distance between dots = 4 cm
 distance between pairs of dots = 12 cm

$$\Delta Q = \frac{RGB_{ST}}{RGB_{BG}}$$

RESULTS

Colour difference of doublets shown in experiments as red and green spots, further the colour saturation was minimized during trials. During onset of scene the local motion prevailed that further turned to global sliding of two squares. We measured with 2-AFC paradigm the time course of the first switching event to global motion in dependence of spot colour distances ΔQ in RGBL space both for chromatic and achromatic scene and contribution of chromaticity into facilitation of switching. Facilitation of switching and switching stability were observed increasing eccentricity of viewing continuously moving the fixation point from the doublet centre to centre of scene. All dependencies are distinct nonlinear. The most intense transition from local to global stimuli perception occurs within first 5 sec.

REFERENCES

1. Anstis S. and Kim J., 2011, *J Vision* 11(3):1–12,
2. Zaretskaya N., Anstis S. and Bartels A. 2013, *J Neuroscience* 33,523–531

