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ECVP '99 abstract

The perceptual amplification of attention to colour

G Sperling, E Blaser, Z-L Lu¶ (Department of Cognitive Science, University of California, Irvine, Social Science Plaza A, Room 3105 Irvine, CA 92697-5100, USA; ¶ Department of Psychology, University of Southern California, Los Angeles, CA, 90089 USA; fax: +1 949 824 2517; e-mail: sperling@uci.edu)

How does attending to a colour enhance perceptual processing of that colour? One facet of this complex problem was addressed in an ambiguous motion paradigm [Lu and Sperling, 1995 *Nature (London)* **377** 237 - 239]. A rapid sequence of frames is presented to a subject: odd-number frames are red - green isoluminant gratings; even-number frames are texture contrast-modulated gratings; all on a yellow background. Normally no motion is seen in these displays. However, making one colour more different from the background (while keeping the grating isoluminant) causes motion to be seen in the direction of that colour. Instructions to attend to a colour, as measured in motion direction discrimination, are equivalent to increasing the saturat colour. The appearance of a grating, however, does not change with attention. A quite complex set of data describing the effects of attention instructions as a function of chromatic mixture and spatial frequency are encapsulated (99% of variance predicted) by a simple linear-system model in which attention amplifies the 'salience' that is computed for a colour input but not the colour itself. Attention amplification, which varies from 1.25 to 2.17 is found to depend on the observer and the attended colour, but not on spatial frequency or colour composition of the stimulus.

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