The Red and the Real

Jonathan Cohen

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Item type: book

This book offers a new approach to longstanding philosophical puzzles about what colors are and how they fit into the natural world. The author argues for a role-functionalist treatment of color — a view according to which colors are identical to certain functional roles involving perceptual effects on subjects. The author first argues (on broadly empirical grounds) for the more general relationalist view that colors are constituted in terms of relations between objects, perceivers, and viewing conditions. He responds to semantic, ontological, and phenomenological objections against this thesis, and argues that relationalism offers the best hope of respecting both empirical results and ordinary belief about color. He then defends the more specific role-functionalist account by contending that the latter is the most plausible form of color relationalism.

Illusions and headaches

Arnold J. Wilkins

in Visual Stress

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Item type: chapter

Certain geometric patterns can be uncomfortable to look at and may sometimes provoke anomalous visual effects: illusions of colour, shape, and motion. The stimuli responsible are very similar to those that provoke seizures in patients with photosensitive epilepsy. Susceptibility to discomfort and anomalous visual effects varies considerably from one person to another and is greatest in those who suffer frequent severe headaches, particularly migraine. Susceptibility is aggravated prior to headache onset or after deprivation of sleep. In migraine with aura,
the illusions predominate in the visual field affected by the aura. The underlying pathophysiology is attributed to a hyperexcitability of the visual cortex.

Visual cortex reprogramming following retinal lesions or artificial scotomas
W. Burke

in Reprogramming the Cerebral Cortex: Plasticity following central and peripheral lesions
Published in print: 2006 Published Online: September 2009
DOI: 10.1093/acprof:oso/9780198528999.003.0002
Item type: chapter

This chapter considers the consequences of retinal lesions and discusses the controversies surrounding retinal lesioning techniques. The perceptual consequences of these techniques are described including hallucinations and perceptual ‘filling-in’. It also discusses the mechanisms of neural circuitry generating these disturbances.

How Does the Hearing System Perform Auditory Scene Analysis?
Georg M. Klump

in 23 Problems in Systems Neuroscience
Published in print: 2006 Published Online: May 2009
DOI: 10.1093/acprof:oso/9780195148220.003.0015
Item type: chapter

This chapter shows that many of the behavioral observations of perceptual patterns reflecting mechanisms of auditory scene analysis can be explained by bottom-up processes operating on the sequentially or simultaneously presented sounds, although some of the examples may also reflect top-down processing. The chapter then discusses some recent examples of perceptual effects in which both the physiology and the psychophysics of the processes involved in auditory scene analysis have been studied.
In 1824, the French chemist M. E. Chevreul travelled to the Gobelin tapestry works to respond to complaints of the weavers that some of the dyes were inferior, and rapidly faded or changed in hue after a tapestry was completed. Chevreul determined that some of the complaints were well-founded, and embarked on some of the early chemical investigations on the stability of coloural pigments. Other complaints seemed to have no basis in chemistry. Chevreul eventually demonstrated that such shifts in hue were not caused by any change in the threads, but were a perceptual effect arising within the weaver. He provided some of the earliest experimental demonstrations of what are now called colour contrast effects. Since its birth in Chevreul's day, the experimental psychology of perception has uncovered many such effects. This chapter also discusses edge enhancement effects, the Hermann grid, and colour adaptation. It looks into explanations of why something appears to have a quality it lacks.

The longitudinal study of spatial cognitive development in children with pre- or perinatal focal brain injury

Joan Stiles, Pamela Moses, and Brianna M. Paul

This chapter discusses the perceptual effects of pre- or perinatal lesions. It shows that when subjects were asked to perform a task the outcome may appear normal, however, procedural affects may be present. Imaging techniques are used to study anatomical and functional changes related to recovered behavior.
This chapter focuses on explaining the main assumptions of the Theory of Event Coding, which is given such prominence because it is the most significant ideomotor approach. The chapter emphasizes the most significant theoretical issues that need to be addressed to verify the approach, examining whether agents acquire action–effect relationships as suggested by the theory and whether these agents are able to predict the perceptual effects as claimed in the theory. It also examines whether these predictions have any control over the action and which aspects of actions are controlled by these predictions, along with the implications of theory and related processes for representing the agent’s self.