

*Perception and Cognition*. By GARY HATFIELD. (Oxford: Clarendon Press, 2009. Pp. xiv + 533. Price ???.)

Gary Hatfield's *Perception and Cognition* contains fourteen previously published papers, some modified from their original versions, along with three as yet unpublished papers and several substantial introductory essays. The main topic is visual perception, with particular emphasis on the philosophical import of vision science. Hatfield organizes the book into three parts: "Foundation and Theoretical Issues in Visual Perception and Cognition," "Color Perception and Qualia," and "History and Philosophy of Perceptual and Cognitive Psychology." Since Hatfield addresses too many topics to survey in a brief review, I will confine attention to a few highlights.

Part I, which is approximately as long as Parts II and III combined, focuses on the psychological processes underlying vision. In several of the papers, Hatfield tries to steer a middle course between AI-inspired "symbolists" such as Fodor and Pylyshyn, who hold that perception involves hypothesis-testing in a "language-like" medium of mental representations, and Gibsonian "direct theorists", who deny that perception "is mediated by any psychological operations at all" (p. 52). According to Hatfield, perception involves non-symbolic, connectionist computation, resulting in a perceptual state with non-conceptual content. Hatfield differs from Gibsonians by treating perception as the product of complex psychological operations, and he differs from symbolists by denying that those operations require anything like symbols in a "language of thought."

Part II addresses metaphysical issues about color, qualia, and reductionism. In "Objectivity and Subjectivity Revisited: Color as a Psychobiological Property" and "The Reality

of Qualia,” Hatfield argues that colors are dispositions to cause certain qualia in normal human perceivers. He attacks an opposing “objectivist” position, according to which colors are mind-independent properties of physical objects, by citing *metamerism* (object with different spectral reflectance distributions can appear to be the same color). He surveys and rejects possible objectivist responses, such as that metamers share some mind-independent “disjunctive property.” Part III, which is less overtly philosophical in style and content than Parts I and II, contains a wealth of useful information about historical and contemporary scientific psychology, covering familiar figures such as Descartes, Berkeley, James, Wundt, and Titchener, along with lesser-known contributors such as Ibn al-Haytham. Hatfield also addresses various methodological issues, such as whether psychologists can legitimately cite introspective evidence (Hatfield says “yes”) and whether psychology will eventually be assimilated to some neighboring discipline such as neuroscience or cognitive science (Hatfield says “no”).

Laudably, Hatfield’s work incorporates abundant experimental and theoretical details from scientific psychology. Hatfield excels at bringing those details into contact with abstract philosophical questions. Few philosophers attempt such a fine-grained interface with mainstream vision science. In my opinion, however, Hatfield occasionally paints a distorted picture of the contemporary science.

A good example is “Perception as Unconscious Inference,” first published in 2002 and reproduced here within Part I. This paper critiques Helmholtz’s famous description of perception as involving an “unconscious inference” from retinal stimulations to hypotheses about the distal environment. The connectionist models of perception favored by Hatfield do not feature anything like deductive, inductive, or abductive inference. Hatfield suggests that vision science

is gradually moving away from inferentialism towards his own favored non-inferentialist approach (p. 152).

Unfortunately, Hatfield does not explore one of the most important trends in vision science over the past two decades: the rise of Bayesianism, which treats vision as a statistical inference governed by Bayesian decision theory. Hatfield mentions this trend in a single fleeting sentence (p. 128), without due recognition of its prominent role in current research. By neglecting Bayesianism, Hatfield downplays how profoundly inferentialism informs much of the best contemporary vision science. Bayesian researchers routinely cite Helmholtz's "unconscious inference" formulation as a guiding idea behind their approach, as in *Perception as Bayesian Inference* (eds. David Knill and Whitman Richards, Cambridge: CUP, 1996, pp. 15, 119, 165, 277.) Hatfield might insist that Bayesians do not intend their talk about the visual system performing statistical inferences to be construed literally. Alternatively, he might argue that Bayesian theories are problematic insofar as they incorporate such talk. But it would have been helpful to hear in detail how Hatfield thinks we can replicate the empirical success achieved by Bayesian researchers, without any literal or non-literal attribution of statistical inferences to the visual system.

Hatfield mixes history, science, and philosophy with a deft touch. Sometimes, though, historical and scientific exposition tends to displace detailed philosophical analysis. The paper "Perception as Unconscious Inference" is again illustrative. Hatfield offers a masterful overview how various historical figures have developed inferentialism. But his arguments against inferentialism strike me as underdeveloped. His main objection is what he calls "the sophisticated content problem" (p. 152). He claims that the perceptual system can perform an inference only if it has the "conceptual resources to express the content" of that inference's

premises and conclusions (p. 139). In many cases, the requisite contents will be highly sophisticated, representing complex features of the distal environment such as surface reflectance distributions. Hatfield deems it implausible that the perceptual system can express the requisite sophisticated contents, because “[t]he human species came upon these physical concepts only late in its development, after the time of Newton” (p. 143).

I find Hatfield’s argument unsatisfying for two reasons. First, committed symbolists such as Fodor can simply insist that human perceptual systems have conceptual resources for expressing the requisite sophisticated contents, even though those resources only became available to higher-level thought through fairly recent scientific developments. Second, Hatfield treats too dismissively the possibility that perceptual inferences are defined over states with non-conceptual content. Rebutting either of these two suggestions would require a more detailed examination than Hatfield provides of notions such as content, concept, representation, and inference. Thus, while inferentialists must certainly address the “sophisticated content problem,” Hatfield did not persuade me that it poses an insurmountable obstacle.

Despite my criticisms, I learned a great deal from this book, and I found it stimulating even when I remained unconvinced. *Perception and Cognition* is required reading for all philosophers interested in perception. I also recommend it to philosophers of mind more generally.

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