Philosophy of Perception

LPS 221 -- Fall 2011/Winter 2012
(tentative syllabus 9/2/11)

In this seminar, we'll read and discuss a range of thought on perception, both historical and contemporary, scientific and philosophical. The hope is to better understand various approaches to the fundamental question: when and how does perception deliver reliable beliefs about the world? As is commonplace, we'll focus primarily on vision, though touch and its relation to sight will be an important theme and other sensory modalities will turn up here, and there.

The default requirement for those taking the course for a grade (other than S/U) is three short papers (750-1250 words) due at the beginning of class in the 4th week, 7th week, and 10th week. Each paper should isolate one localized point in the readings and offer some analysis and/or critique. (I'm happy to discuss topics and/or read drafts ahead of time, in person or by e-mail.) Other options are open to negotiation.

I assume everyone has access to copies of

Berkeley, *An Essay Toward a New Theory of Vision*.

Hatfield, *Perception and Cognition*.

Reid, *An Inquiry into the Human Mind on the Principles of Common Sense* (preferably the new critical edition edited by Derek Brooks).

(You might find it convenient also to have a copy of Schwartz, ed., *Perception*.)

The rest of the assigned readings are available to enrolled students on the course EEE web page. Copies of

Palmer, *Vision Science*.

Nichols, *Thomas Reid's Theory of Perception*.

will be available somewhere on the 7th floor of SST (precise location TBA).

Please come to the first meeting prepared to discuss Topic 1.

Topics

Much thought on perception begins with Empiricism, and Empiricism begins with Locke. Here we find the modern origins of three perennial themes: the theory of ideas, the distinction between primary and secondary qualities, and a representative theory of perception.

1. Locke

Locke, *An Essay Concerning Human Understanding*, §§II.8-9, II.30, IV.2.14, IV.4.1-5, IV.11.

Bennett, *Locke, Berkeley, Hume*, pp. 63-70.

Jacovides, 'Locke's distinction between primary and secondary qualities'.

Extra reading:

Chappell, 'Locke's theory of ideas'.

Newman, 'Locke on knowledge'.

Ayers, 'Primary and secondary qualities in Locke's *Essay*'.

Palmer, *Vision Science*, pp. 47-50.

The familiar story has Berkeley reacting to Locke, mounting a full defense of the theory of ideas, and offering his own subjective idealism in response to the skeptical troubles of the representative theory.

2. The Berkeley we all know

Berkeley, *Three Dialogues Between Hylas and Philonous*, the first dialogue and beginning of the second (pp. 59-97).

Pitcher, *Berkeley*, chapter VI (pp. 91-109).

Pitcher, *A Theory of Perception*, pp. 28-42.

Extra reading:

Grayling, ‘Berkeley’s argument for immaterialism’.

There’s also an earlier, less familiar Berkeley, central to the history of theorizing about perception.

3. Berkeley the vision theorist I

Berkeley, *An Essay Toward a New Theory of Vision*, §§2-51.

Pitcher, *Berkeley*, chapter II.

Berkeley, *An Essay Toward a New Theory of Vision*, §§52-87.

Pitcher, *Berkeley*, chapter III.

Extra reading:

Palmer, *Vision Science*, pp. 249-253.

Hershenson, *The Moon Illusion*.

4. Berkeley the vision theorist II

Berkeley, *An Essay Toward a New Theory of Vision*, §§88-159 (pp. 63-97).

Pitcher, *Berkeley*, chapter IV.

Atherton, ‘Berkeley’s theory of vision and its reception’, pp. 96-102.

Extra reading:

Berkeley, ‘New theory of vision or visual language vindicated and explained’.

Hatfield, ‘The sensory core in the medieval foundations of early modern perceptual theory’.

Atherton, *Berkeley’s Revolution in Vision*.

Next comes Hume, who agrees with Berkeley that Locke’s representative theory of perception leads to skepticism, but rejects Berkeley’s idealistic solution. (See Maddy, ‘Naturalism and common sense’, §I.)

As is well-known, Hume’s skepticism awakened Kant from his dogmatic slumbers and provoked his transcendental idealism. Thomas Reid was also awakened, this time from his complacent Berkeleanism; he wrote to

Hume, ‘Your System appears to me not onely coherent in all its parts, but likeways justly deduced from principles commonly received among Philosophers: Principles, which I never thought of calling in Question, untill the conclusions you draw from them in the treatise on humane Nature made me suspect them’ (quoted in Reid [1764], p. 264). Reid’s response to Humean skepticism took a more naturalistic turn that Kant’s, beginning with a theory of perception that rejects ideas.

5. Reid I

Some stage-setting and methodological preliminaries:

Reid, *Inquiry*, chapter I.

Reid, *Essay*, §§I.1, I.5, I.6.

The sense of smell analyzed:

Reid, *Inquiry*, chapter II.

The sense of touch analyzed (the distinction between primary and secondary qualities and the crucial experiment concerning ideas):

Reid, *Inquiry*, chapter V.

Extra reading:

Nichols, *Thomas Reid’s Theory of Perception*, chapter 3.

van Cleve, ‘Reid on the real foundation of the primary-secondary distinction’.

6. Reid II

The case against ideas:

Reid, *Essay*, §II.14.

The theory of vision:

Reid, *Inquiry*, §§VI.2-9, 11-13, 20.

Reid, *Essay*, §II.5.

Extra reading:

Nichols, *Reid’s Theory of Perception*, chapters 5 and 7.

Reid and non-Euclidean geometry:

Daniels, *Thomas Reid's 'Inquiry': the Geometry of Visibles and the Case for Realism*.

van Cleve, 'Thomas Reid's geometry of visibles'.

Grandi, 'Thomas Reid's geometry of visibles and the parallel postulate.'

7. Reid III

The theory of vision (continued):

Reid, *Inquiry*, §§VI.21-23.

Back to sensation and primary/secondary:

Reid, *Essay*, §§II.16-18.

Perception and information about the world:

Reid, *Essay*, §§II.21-22.

Maddy, 'Naturalism and common sense', §II.

Extra reading:

Reid, *Essay*, §§II.10-11, on Berkeley. Here Reid remarks:

'In the Theory of vision, [Berkeley] goes no further than to assert that the objects of sight are nothing but ideas in the mind, granting, or at least not denying, that there is a tangible world, which is really external, and which exists whether we perceive it or not. Whether the reason of this was, that his system had not, at that time, wholly opened to his own mind, or whether he thought it prudent to let it enter into the minds of his readers by degrees, I cannot say. I think he insinuates the last as the reason in the Principles of human knowledge.

'The Theory of vision, however, taken by itself, and without relation to the main branch of his system, contains very important discoveries, and marks of great genius. He distinguishes, more accurately than any that went before him, between the immediate objects of sight, and those of the other senses which are early associated with them. He shews, that distance, of itself, and immediately, is not seen; but that we learn to judge of it by certain sensations and perceptions which are connected with it. This is a very important observation; and, I believe, was first made by this author. It gives much new light to the operations of our senses, and serves to account for many phenomena in optics, of which the greatest adepts in that science had

always either given a false account, or acknowledged that they could give none at all' (p. 139).

8. Reid IV

Nichols, *Thomas Reid's Theory of Perception*, chapters 4, 6 and 8.

Extra reading:

van Cleve, 'Reid's theory of perception'.

Now let's take a brief break from the march of history to examine three of the topics raised so far. One of the recurrent themes in both Berkeley and Reid is the question the Irish scientist William Molyneux put to Locke in a letter of 1688, included by Locke in the second edition of the *Essay* (1694). It continues to engage perception theorists to this day.

9. Molyneux's thought experiment

Nichols, *Thomas Reid's Theory of Perception*, chapter 9.

In the days of Locke, Berkeley and Reid, Molyneux's question was a pure thought experiment, but in 1728, William Cheselden reported on an actual case:

Degenaar, *Molyneux's Problem*, pp. 53-56, 87-88.

Other such cases are described in Degenaar, pp. 89-97, 114-117, Gregory, *Eye and Brain*, pp. 151-158, Morgan, *Molyneux's Question,* pp. 16-23, 180-185, and Sacks, 'To see or not to see'. Cheselden's methods were criticized; other cases suggested the opposite conclusion (e.g., see Franz described in Degenaar, pp. 90-94); all the cases were ambiguous or compromised in various ways. As understanding of the brain improved, it became clear that even a perfectly straightforward case of an adult blind from birth wouldn't tell us much about the normal case, because it might take some time for the visual system to process stimulations in any coherent way at all, and because the adult's brain would have adapted in myriad ways to the lack normal input to the visual cortex (e.g., see Sacks, 'To see or not to see', pp. 140-142).

(Perhaps it's worth noting at this point that the visual experience of blind people differs dramatically from one to the next. In his 'The mind's eye', Sacks describes cases ranging from John Hull -- who gradually lost all visual imagery, to reach a state of 'deep blindness', over a period of 2-3 years after becoming blind at age 48 -- to Zoltan Torey -- who was blinded at age 21 and deliberately maintained and cultivated his visual imagery, 'developing a remarkable power of generating, holding, and manipulating images in his mind, so

much so that he had been able to construct a visual world that seemed as real and intense to him as the perceptual one he had lost' (pp. 208-9).)

Discussion of Molyneux's problem during the 19th century evolved to a focus on whether spatial vision is learned or innate (see Denegaar, chapter 5). Empirical work moved toward experimentation on animals (see Denegaar, pp. 118-120, Morgan, pp. 185-191) and, more recently, developmental work on young humans. Fascinating as this work is, it leaves behind the original puzzle about the relationship between vision and touch. From a contemporary perspective:

Gallager, 'Neurons and neonates: reflections on the Molyneux problem'.

Finally, on the interconnections between sensory modalities, consider these oddities:

'Facial' vision:

Morgan, *Molyneux's Question,* pp. 36 (¶1) and 48 (¶¶1-2) (from Diderot), and pp. 166-168 (from Taylor).

Sensory substitution devices:

Morgan, *Molyneux's Question*, pp. 200-207.

Degenaar, *Molyneux's Problem*, pp. 120-123.

Could a person mistake a sound for a touch? A touch for a sight?

Extra reading:

Mach, short note in Schwartz's anthology, pp. 117-118.

Evans, 'Molyneux's question' (edited in Schwartz) or 'Molyneux's question' (complete in Nöe and Thompson).

Sassen, 'Kant on Molyneux's problem'.

Warren and Strelow, 'Learning spatial dimensions with a visual sensory aid: Molyneux revisited'.

Viewed epistemologically, the fundamental revolutionary feature of Reid's position is his rejection of the incorrigibility of introspection, of the notion that introspection is more reliable than perception, memory, etc. In fact, largely unexamined confidence in the certainty of introspective evidence continues to nourish the roots of various skeptical arguments to this day. Here are some dissenting thoughts.

10. Introspection

Dennett, *Consciousness Explained*, pp. 46-60, 321-333, 338-356.

Palmer, *Vision Science*, pp. 38-39, 616-618, 633-636.

Sacks, ‘The persistence of vision’, pp. 173-181.

Schwitzgebel, chapter 2, 4, and pp. 125-127.

Extra reading:

Hatfield, ‘Introspective evidence in psychology’.

----- End of Fall quarter/Beginning of Winter quarter -----

As the phenomenon of blindsight makes clear, there are pathways for information to reach us without conscious awareness. Recall that Reid downplayed the role of sensation and construed perception in terms of belief-acquisition. Here’s a contemporary version of that idea. (Armstrong proposed a related view in his *Perception and the Physical World* and *A Materialist Theory of Mind*.)

11. Perception as belief-acquisition

Pitcher, *A Theory of Perception*, chapter II.

Goldman, ‘Appearing as irreducible in perception’.

Extra reading:

Dretske, *Seeing and Knowing*, chapter 1, §§1-2.

We return now to the march of history, first to the origins of the idea that the perceptual system performs some kind of inference.

12. Helmholtz: unconscious inference

Helmholtz, *Treatise on Physiological Optics*, §26.

Hatfield, *The Natural and the Normative*, pp. 165-179, 195-218.

Extra reading:

The remainder of Hatfield, *The Natural and the Normative*, chapter 5.

Palmer, *Vision Science*, pp. 55-59.

Two aspects of Helmholtz's position came up for considerable debate. First, the Gestaltists rejected the notion of perceptual atomism implicit in his empiricism and so much of prior theorizing. (See, e.g., Köhler [1947], p. 119: 'the point-to-point correlation between retinal stimuli and sensory experience is no longer defended … but … it took science some time to accept obvious evidence … Helmholtz refused to do so'.)

13. Gestalt psychology

Koffka, *Principles of Gestalt Psychology*, chapter III.

Köhler, 'Some tasks of gestalt psychology'.

Spelke et al, 'The development of object perception', pp. 297-314.

Extra reading:

Palmer, *Vision Science*, pp. 50-53, 255-261, 398-407.

Köhler, *Gestalt Psychology*, chapter V.

Maddy, *Second Philosophy*, pp. 249-254.

The second controversial Helmholtzian theme is the idea that perception involves inference. J.J. Gibson took the negative side of this debate, arguing that perception is 'direct'; Irvin Rock, Richard Gregory, and Julian Hochberg followed Helmholtz (though not necessarily his empiricism). A number of subtle issues are often intertwined in these discussions; we'll try to sort some of them out.

14. Gibson vs. the Inferentialists I

Gibson, 'A theory of direct visual perception' and other selections in Schwartz's anthology, (i.e., pp. 71-79, 158-174).

Fodor and Pylyshyn, 'How direct is visual perception?: some reflections on Gibson's "ecological approach"' (edited in Schwartz) or 'How direct is visual perception?: some reflections on Gibson's "ecological approach"' (complete in Noë and Thompson).

Gregory, *Eye and Brain*, chapter 1.

Rock, 'Inference in perception'.

Extra reading:

Gibson, 'The visual system: environmental information'.

Gibson, 'The theory of information pick-up and its consequences'.

Rock, *The Logic of Perception*, chapters 1 and 2.

Palmer, *Vision Science*, pp. 53-59, 80-85.

15. Gibson vs. the Inferentialists II

Ullman, ‘Against direct perception’, §§1-4.

Schwartz, ‘Perceptual inference’.

Schwartz, ‘A Gibsonian alternative?’, pp. 137-142.

Hatfield, ‘Perception as unconscious inference’.

Extra reading:

Hatfield, *Perception and Cognition*, pp. 36-39.

Gregory, ‘Perceptions as hypotheses’.

Anscombe, ‘Comment on Professor R. L. Gregory’s paper’.

Perhaps the strongest influence on the contemporary theory of vision is the ground-breaking work of David Marr and his co-workers at MIT in the 1970s. (Marr died of leukemia in 1980 at age 35.)

We’ll try to get an overview of Marr’s theory. As the selections from Palmer’s recent textbook demonstrate, not all of Marr’s specific proposals are currently embraced, but the overall framework he developed remains central to the interdisciplinary field of vision science. Following his train of thought will give us an idea of what a theory of vision might look like, even if the details have been superseded.

16. Marr: information-processing I

Marr, *Vision*, introduction (pp. 3-7), chapter 1 (pp. 8-38). (overview)

Palmer, *Vision Science*, pp. 59-79, 85-92.

Marr, *Vision*, pp. 41-53 (the primal sketch).

Palmer, *Vision Science*, pp. 172-182.

17. Marr: information-processing II

Marr, *Vision*, pp. 99-116 (stereopsis), 264-269 (toward the 2½D sketch).

Palmer, *Vision Science*, pp. 202-203, 206-217.

Marr, *Vision*, chapter 5 (the 3D model).

Palmer, *Vision Science*, pp. 351-354, 394-398.

Extra reading:

Crone, 'The history of stereopsis'. (Crone tries to explain why it took so long to appreciate how the visual system detects depth. He blames Empiricism.)

18. Marr: information-processing III

Ullman, 'Against direct perception', §5.

Churchland, 'Is the visual system as smart as it looks?'

Ullman, 'Tacit assumptions in the computational study of vision'.

Shagrir, 'Marr on computational-level theories'.

Kitcher, 'Marr's computational theory of vision'.

Extra reading:

Hatfield, 'Representation and task analysis'.

Goodale and Humphrey, 'The objects of action and perception'.

Let's conclude with some readings from Gary Hatfield, one of our leading contemporary philosophers of perception. These essays draw us more deeply into the nature of color vision. Consider, along the way, what's become of the point where we started, with Locke's venerable distinction between primary and secondary qualities.

19. Hatfield I

Hatfield, 'Representation and constraints: the inverse problem and the structure of visual space'.

Palmer, *Vision Science*, pp. 95-115, 122-128, 132-134.

Hatfield, 'Color perception and neural coding'.

20. Hatfield II

Hatfield, ‘On perceptual constancy’.

Hatfield, ‘Objectivity and subjectivity revisited’.

Hatfield, ‘The reality of qualia’.

Extra reading:

Hatfield, ‘Sense data and the mind-body problem’.

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