# Review of Seeing, Doing, and Knowing: A Philosophical Theory of Sense Perception

The MIT Faculty has made this article openly available. Please share how this access benefits you. Your story matters.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>As Published</td>
<td><a href="http://dx.doi.org/10.1093/mind/fzq091">http://dx.doi.org/10.1093/mind/fzq091</a></td>
</tr>
<tr>
<td>Publisher</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>Version</td>
<td>Author's final manuscript</td>
</tr>
<tr>
<td>Accessed</td>
<td>Wed Mar 16 08:32:09 EDT 2016</td>
</tr>
<tr>
<td>Citable Link</td>
<td><a href="http://hdl.handle.net/1721.1/76269">http://hdl.handle.net/1721.1/76269</a></td>
</tr>
<tr>
<td>Terms of Use</td>
<td>Creative Commons Attribution-Noncommercial-Share Alike 3.0</td>
</tr>
<tr>
<td>Detailed Terms</td>
<td><a href="http://creativecommons.org/licenses/by-nc-sa/3.0/">http://creativecommons.org/licenses/by-nc-sa/3.0/</a></td>
</tr>
</tbody>
</table>
In the prelude to Matthen’s marvelous *Seeing, Doing, and Knowing*—“The New Philosophy of Vision”—he welcomes a comparatively recent development in theorizing about perception. Vision (for example) is not now treated as merely presenting the subject with a “sensuously given mosaic of color spots” (David Lewis’s phrase, quoted at p. 2), the relevance of which to the scene before the eyes is obscure, but rather as “delivering an interpreted message” (p. 5) about our familiar three-dimensional environment. “Sensory experiences are not insulated inner events that must be decoded or diagnosed by us before they can be put to use, but rather inherently *meaningful* states with representational significance beyond themselves” (p. 19). And that emphasis on how sensory awareness purports to be of objects located in three-dimensional space fits naturally with the idea that our sensory systems are “problem solvers” (p. 5). In the case of vision, the fundamental task is what is often called “inverse optics”: starting from the activity of receptors in the retina, the visual system attempts to extract the best hypothesis about the environment.

Of course, the problem the visual system tries to solve has no unique solution, in the sense that innumerable environmental configurations could be responsible for any given pattern of retinal stimulation. One of Matthen’s examples is illumination and surface reflectance, which—simplifying matters somewhat—are jointly responsible for the light reaching the eye from an object. Following Matthen, let us add to the inverse optics picture the claim that color is reflectance. Since the light reaching the eye is the product of the illumination and reflectance, in essence the visual system has to solve a single equation with two unknowns. Yet the visual system somehow manages to disentangle the relative contributions of the illumination and reflectance, with the result that we see the colors of surfaces reasonably accurately. Exactly how the visual system solves this problem is disputed, but as far as research programmes in cognitive science go, this one is far from degenerating.
Although Matthen praises orthodoxy for its rejection of the “traditional subjectivist paradigm” (p. 6), his ultimate ambition is to bury it. He sees “five interrelated difficulties” (p. 6), of which I shall mention a representative three. (All five use colour as an illustrative example.) The first concerns constancy: we are good, but not perfect, at tracking the reflectance of a thing through diverse lighting conditions. Since “colour appearance does not track reflectance precisely...what exactly is the value of fingering this precise physical quantity as its target?” (p. 7).

The second problem stems from the diversity of kinds of colour vision across species. “This is a puzzle if we think that colour is reflectance, and that colour vision decodes reflectance and illumination—for in many organisms, colour vision seems to be decoding something that is of only idiosyncratic significance” (p.7).

The third problem is, in effect, about modes of presentation. Colour vision does not deliver a message about reflectance as such—if it did, then the identification of colour with reflectance would hardly be controversial. Aristotle saw colours, despite knowing “nought about reflectance”, so “[s]houldn’t a theory of colour vision be able to offer us a better account of its significance to the perceiver?” (p. 7).

“The upshot”, according to Matthen, “is that we need a different and more accommodating way to think about objective sense-features and their locations” (p.7), and it is this that Seeing, Doing, and Knowing aims to provide.

Is that really the upshot? Take the first problem. True, “colour appearance does not track reflectance precisely”. But how can this be an objection to the identification of colour with reflectance? After all, colour appearance does not track colour precisely—that, is we do not have perfect colour constancy. Far from being an objection, the failure of colour appearance to track reflectance precisely is exactly what Matthen’s opponent requires.

Turning to the second problem, Matthen’s chief example is the pigeon, which has colour vision extending into the ultraviolet. As the concentration of ultraviolet increases with the angle from the sun, the pigeon’s color vision could potentially be used for navigation in an otherwise featureless sky. Supposing that it does so, then “for the bird, colour is a property of directions as well as surfaces...[which] makes pigeon-colour a different property than the one we see” (p. 173). Of course, color is not just a property of
surfaces, but also of light sources and volumes, and that fact alone raises trouble for the view that identifies color with reflectance. As Matthen mentions (p. 176, n. 8), proponents of the reflectance view have generally taken it to be in need of amendment for precisely this reason. But the account can be extended—volumes, surfaces, and light sources all change the incident light in various ways (in the case of light sources, by adding to the light rather than reflecting it), and color can perhaps be identified with more general light-transforming properties, of which reflectances are determinates.

Supposing that the reflectance account can be extended to cover light sources, do Matthen’s pigeons raise an extra difficulty? Yes, if the example shows that pigeon colors are properties of directions (as Matthen supposes) because directions themselves do not change light in any way. But the example forces no such description, any more than the fact that humans can use their color vision to identify the east-west axis in the morning or evening shows that human colors are properties of directions. Matthen’s pigeons may be navigating by seeing coloured light sources in various regions of the sky rather than colored directions.

The third problem about modes of presentation, needless to say, is not so easily dismissed. Does Matthen’s “different and more accommodating way to think about objective sense-features” solve it?

Matthen summarizes his more accommodating alternative as follows: “sensory systems are automatic sorting machines that come into direct contact with environmental objects and sort them into classes according to how they should be treated for the purposes of physical manipulation and investigation” (p. 8)—hence the “Doing” in the book’s title.

As far as the third problem goes, the relevant part of the above quotation is the bit about “sorting machines”. This is “The Sensory Classification Thesis”, the main thrust of which is that “sensory systems classify distal stimuli—objects or happenings in the external world” (p. 19). That might not seem worthy of lengthy defense, since it sounds like (in Matthen’s terminology) “Distal Attributivism”, the view that “every sensory state attributes some quality to an external object” (p. 19) which (as Matthen notes) has been well enough defended already. However, SCT goes beyond DA in at least one crucial respect: “it is a theory about the construction of sense-features” (p. 20), and in particular
it “insist[s] that categories like red are the products of sensory activity” (p. 19), they are “not simply patterns in the ambient energy record” (p. 20).

There is a further important respect in which SCT (at least as Matthen goes on to elaborate it) differs from DA. It is commonly assumed that sensory classification involves representations for the categories being classified, but usually these representations are not taken to be within the perceiver’s ken—theory and experiment is needed to reveal them. In contrast, SCT takes the representations to be out in the open, because they are “[s]ensations: events in sensory consciousness with a particular subjective feel. These events are like labels that the system attaches to stimuli in order that we may know that they have been assigned to a particular class” (p. 24, my emphasis).

If “sensations” are thought of as “labels” for features of external objects, dispositionalism about such features is often the next step: redness is the disposition to produce a certain kind of sensation, for instance. Matthen, however, is at pains to disavow this view: “something looks red because the visual system has assigned it to the class of red things; the experience of red is simply the visual system’s label for that class, the way we know how the thing has been classified. As we have been saying, it is an inversion to say that something is red because it produces in us the experience of red” (p. 32).

Often dispositionalism is associated with an epistemic thesis: a perceiver discovers that a tomato before her eyes is red partly because she notices the occurrence of a certain sensation. Despite resisting the dispositionalist identification of redness with a disposition to produce sensations, the quotations in the two paragraphs above suggest that Matthen agrees with the epistemic thesis. His analogy with language reinforces this interpretation:

[T]he English call a feline creature ‘cat’, the French call it ‘chat’: this does not mean that they are employing different classifications; all it means is that they have different words for the same classification. Analogously in sensation.

Different sensations can betoken the same sense-feature. (p. 33, see also p. 147)

Someone who says “Le chat est sur le paillasson” is speaking of cats and mats, not about French. But understanding that sentence requires awareness of the French label for a cat.
Now Matthen does stress that “sensations are not normally objects of our awareness” (p. 27, see also p. 193), which seems in tension with the epistemic thesis. But perhaps all he means by this is that we do not normally attend to our sensations, as we do to external objects; nonetheless, we are aware of them, lurking in the background.

Matthen uses the linguistic analogy to suggest a solution to the third problem, of explaining color’s “significance to the perceiver”. The “mode of awareness”, or “manner of presentation” (p. 28) of the color green is the sensation or “label” that the visual system uses to classify things as green.

This proposed solution to the third problem raises a host of difficult questions, but for the sake of the argument let us suppose it is correct. Why can’t the proponent of the picture Matthen criticises—inverse optics coupled with the identification of visible qualities with “real-world physical variables” (p. 6)—just take it on board? How could Aristotle see colors, despite his ignorance of reflectances? Very roughly: for the same reason that he could understand the word “hydor” despite his ignorance of hydrogen and oxygen. That may not be a good answer, but it does not seem to be in conflict with the basic picture that Matthen urges us to reject.

To summarize: Matthen persuasively argues against the traditional “subjectivist paradigm” in the philosophy of perception, but what is not as persuasive is his case against recent views that emphasize—as Matthen does himself—“the outward orientated phenomenology of sensing” (p. 3).

These issues form only a small fragment of *Seeing, Doing, and Knowing*. It is an intricate and dense book, packed with empirically informed and philosophically sophisticated treatments of non-conceptual content, sensory concepts, sensory similarity, animal colour vision, visual objects, visual reference, and much more. This review has spent time splashing around in the shallow end; anyone interested in perception should buy the book and wade deeper.

ALEX BYRNE

*Department of Linguistics and Philosophy*

*Massachusetts Institute of Technology*

*Cambridge MA 02139, USA*