

## 22c The role of inner objects in perception

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One of the things which motivated me to write *Descartes on Seeing*<sup>1</sup> was a desire get at the source of the idea that in perception we are directly or immediately aware of some sort of inner object that mediates between the knower and the known. I argued there that one of the roots of this view lay in Descartes' theory of vision – specifically, in his understanding of the role of the retinal image in vision. Yolton is also concerned with this problem, and wishes to show that Descartes (and most of the other major early modern philosophers, with the exception of Malebranche) did not really hold the sort of representative theory of ideas which has often been attributed to them, and thus are not vulnerable to 'veil of perception' scepticism. While I am sympathetic to his desire to avoid both veil of perception scepticism and a merely physicalistic account of perception that leaves out the reality of perceptual awareness,<sup>2</sup> I am not fully persuaded that the account Yolton develops should be characterised as Descartes' 'mature view'.<sup>3</sup> And furthermore I have some doubts about how coherent the view is in its own right.

Part of what is at issue between us is, I think, a methodological difference about the value of certain sorts of rational reconstruction. Descartes' views evolved in the course of his wrestling with different questions in the context of dialogue with very different sorts of opponents. Not only does Descartes use different terminology when addressing different opponents, and address different questions in different texts, but his views also develop through a sort of internal dialectic as he comes to acknowledge implications latent in his earlier views. The question, then, is how the historian of philosophy should handle the resulting tensions and apparent inconsistencies. Yolton recognizes that it is difficult to discover a systematic account of perceptual cognition in Descartes, and takes it to be his task to extract or construct a coherent theory out of materials drawn from various texts, admitting that the one he constructs is 'a bit obscure and not fully developed' in Descartes.<sup>4</sup>

I have reservations about this sort of rational reconstruction. For, although we should of course try to harmonize the various things Descartes says about perception, we should be careful to be faithful to the

texts and not force a fit between them. For example, as I argued in *Descartes on Seeing*, Descartes' discussion of the role of sensation and judgment in perception in the Sixth Replies (which occurs in the context of a dispute over the reliability of the senses relative to that of the intellect) differs quite significantly from his account in the *Dioptrique* (a work in which he was concerned less with issues of certainty than with showing that the perceptions of the senses could be successfully explained without recourse to the forms or real qualities postulated by the scholastic philosophers). And I am inclined to think that the language of formal and objective reality in the Third Meditation cannot easily be grafted into his more scientific discussions of perception in *La Dioptrique* and *Le Monde*, as Yolton tries to do.

Methodologically, I prefer the approach taken by Margaret Wilson.<sup>5</sup> When she discovers tensions between various texts, she does not try to force them to harmonise or to label one of them as his real view and discard the others, but painstakingly examines the terminology Descartes uses to speak about the relation between motions in the brain and our sensations in a wide variety of different contexts, and sketches the several alternative models for understanding the relation between motions in the brain and our sensory ideas that seem to underlie his terminology. Whether or not they can be harmonised is a question she takes up after she has explored each one carefully, and if at some points they cannot be harmonised, she simply acknowledges this fact. Although her method admittedly leaves us with 'loose ends', it has the advantage of keeping us close to the texts and enabling us to get a better feeling for how Descartes himself was thinking in various contexts and why.

Yolton's view, which he attributes to Descartes, is that there is no causal connection between the motions in our brains and our perceptual experience. Instead, he argues that there are two interactive relations occurring between perceivers and the physical world: a physical causal one which holds between objects and our nervous systems and brains, and a cognitive or 'semantic' one which involves the mind responding to what is happening in the nerves and brain.<sup>6</sup> He says that 'this response is not caused by physical events; rather physical events are interpreted by the mind'; 'ideas are the mind's signficatory responses to the natural signs of physical motions in nerves and brain'.<sup>8</sup> Or, as he put it in his earlier book, 'ideas are not causal effects of motion but semantic and epistemic responses to it'.<sup>9</sup> Since Yolton does not claim that this view is the *only* account of perception present in Descartes' writings, discordant texts do not necessarily rule out his interpretation, and this makes the task of evaluating it difficult. But the main problems for his interpretation seem to lie in two areas: (1) in his claim that the connection between motions in the brain and our sensations is *not* a causal one, and (2) in articulating clearly the alternative that he is proposing.

(1) Descartes often uses causal or implicitly causal language in talking

about the relation between motions in our brains and our sensations. Wilson cites a wide variety of texts in which causal, or implicitly causal, language is employed in discussing the relation between motions in the brain and our sensations.<sup>10</sup> She also argues at length that the heterogeneity of mental and physical substance does not, according to Descartes,<sup>11</sup> preclude causal interaction between them. If, then, Yolton wishes to maintain the radical view that there is *no* causal action of brain motions upon the mind, it is incumbent on him to provide better textual evidence than he does that this was Descartes' mature and considered view. Yolton may be unhappy with the causal locution, but was Descartes unhappy with it?<sup>12</sup> And if so, was he unhappy for the same reasons Yolton is or for other reasons?

In his defence, of course, Yolton can document the presence in Descartes' writings of other locutions for speaking about the relation between motions in the brain and our sensations, and point out (correctly, I think) that this shows Descartes was not locked into a single way of thinking about the relation between motions in the brain and sensations.<sup>13</sup> He sometimes speaks of the brain as presenting a pattern of motions to the mind. He also speaks of the motions in the brain 'giving occasion to the soul' to 'form' or 'conceive' certain ideas of sense,<sup>14</sup> and in yet other contexts he employs the language analogy according to which the motions serve as signs which are instituted by nature to make us have certain sensations.<sup>15</sup> Wilson, however, argues that none of these locutions are inconsistent with the existence of a causal connection between motions in our brains and our minds. For, how could something serve as a sign to the mind, for example, unless it effected some sort of change in it?<sup>16</sup>

In his response to Wilson, Yolton asks whether the causal process occurring between objects and the motions in our brain (which involves physical motion and impact) is of the same sort as that which occurs in brain-to-mind causation. If we say it is the same, then this tends to materialise the mind. If we say that the two causal relationships involve different sorts of processes, then we have 'two causal relations, two interactive relations'.<sup>17</sup> Wilson concedes that Descartes did not regard body-mind causation as a case of causation by physical motion and impact,<sup>18</sup> but what follows from this? Yolton at this point interprets Wilson's admission that body-mind causation is not a case of causation by physical impact, as an admission that there is another kind of non-impact causation<sup>19</sup> (which seems fair enough), but then slides quickly back into his own preferred locution about two kinds of 'interactive relations', with the word 'causal' having been dropped. But it is one thing to say that the way brain motions affect the mind is not a case of causation by impact, and quite another to say that it is not a case of causation at all. Is he denying all causal connection between brain and mind, or merely making the far less controversial claim that this sort of causation is of a different sort from that which obtains between physical things?

*Perhaps* he does not, after all, really mean to deny that brain motions cause sensations. He says things that sound quite radical, speaking of 'Descartes' rejection of any causal relation between the physical activity of objects on our sense and the perceptual ideas in our minds'.<sup>20</sup> But there are passages in which he seems to retreat from this, saying things like 'unless we can explicate the causation of the signficatory response, we *may* want to limit the causal relation to the perceiver's body'.<sup>21</sup> And in another place he says '*perhaps* we can say that the *signifying* relation replaces the causal relation between physical motions and ideas'.<sup>22</sup>

It is extremely difficult to sort out the issues here because the key terms 'causal' and 'interaction' are very ill defined. Sometimes Yolton seems to use them interchangeably,<sup>23</sup> but more often he contrasts object-brain interaction and brain-mind interaction, calling the former a causal relation and the latter a 'semantic' or 'signficatory' relation. Carving out a space for some way of understanding the relation between brain and mind in sensation that is not merely causal seems to me to be very close to the heart of Yolton's whole project; if I am correct about this, he needs to be more forthcoming about what he means by a 'causal relationship' and why he finds it so objectionable to speak about motions in the brain causing our sensory ideas.<sup>24</sup> The terms 'cause' and 'causal' are notoriously capacious ones,<sup>25</sup> and clarification is required.

The term *interaction* would seem to imply that the two things act upon each other. But causation need not involve a two-way interaction. The sun, by shining on it, causes a rock to grow warm, but the rock has no effect on the sun. Nor do the changes in my eyes and brain caused by the light coming from some object have any effect on that object. And cases of perceptual recognition do not seem correctly describable as cases of interaction either – or at least not interaction with the object perceived. I look out of my window, see an eagle flying by, and exclaim 'Hey, there goes an eagle!' Unless the eagle hears or sees me, I have no effect on it. Perhaps the sort of signficatory or semantic relation which he postulates to hold between brain motions and the mind can be more accurately described as a case of genuine two-way interaction, but I am unclear how.

(2) Supposing we concede for the sake of argument that the relationship between brain motions and our sensory ideas is not a causal one, how are we to understand the alternative proposed by Yolton? The main text on which Yolton relies in developing his natural sign theory is the notoriously difficult first chapter of *Le Monde*. Perceiving is like grasping the signification of spoken words. Words have meaning only by human convention, but there are also what Descartes calls 'natural signs' – for example, tears and smiles are natural signs of sadness and joy. Descartes says:

But if words which signify nothing except by human institution, suffice to make us think of things, with which they have no resemb-

lance: why cannot Nature have also established a certain sign, which makes us have the sensation of light although this sign has nothing in itself which is similar to this sensation? And is it not thus that she has established laughter and tears to make us read joy and sadness on the faces of men? You will say, perhaps, that our ears only really make us sense the sound of the words and our eyes only make us sense the face of the one who laughs or cries, and that it is our mind which having retained that which the words or countenance signify, represents it to us at the same time. To this I can respond that it is our mind, that in the same way, represents to us the idea of light, each time that the action which signifies it touches our eye [*c'est notre esprit toute de meme, qui nous represent l'idee de la lumiere, toutes les fois que l'action qui la signifie touche notre oeil*].<sup>26</sup>

According to Yolton, then, Descartes in this passage is saying that the mind when perceiving light 'reads the physical motions [in the brain], as it does the tears and smiles of a face'.<sup>27</sup> The brain motions are the signs, and our sensations are what is signified. He calls this the 'inverse sign' relationship.<sup>28</sup> Obviously, the case of perceiving light differs from the case of perceiving joy or sadness by the smile or tears we perceive on the other's face, since we are not and cannot be aware of the motions in our brain as we are of the sound of the words or the expression on our friend's face. Thus, Yolton explains, the perceiver 'reacts unconsciously' to motions in his brain by forming ideas,<sup>29</sup> and the mind is able to do this because it is 'so created by God that it has the semantic reaction of sense and idea'.<sup>30</sup> Yolton believes we can understand the sign relation and the semantic interaction to occur unconsciously without thereby introducing a homunculus who is doing the interpreting. Current writers would, he says, describe it as occurring at a preconscious or subpersonal level; the mind just has a natural function of reacting in this way to brain motions.<sup>31</sup>

I am troubled by a number of features of his interpretation here. First, the 'inverse-sign' relationship is baffling. It does seem counter-intuitive, as Yolton himself notes.<sup>32</sup> One would naturally expect that the motions in our brains function as signs of things out there in the world, but Descartes seems to be saying that the physical motions signify to us the sensation we feel. But regarding the motions in our brain as signs of (or for) sensations seems inconsistent with the outward-directed and intentional nature of perceptual consciousness.<sup>33</sup> Perhaps there are two senses of 'sign' at work here. A sign may be an indication of the presence of something (as smoke is a sign of fire). It may also be a signal to someone to do something – as the firing of a gun is a sign to the runners to begin a race. And perhaps it is in the latter sense that brain motions may be signs to the mind to form ideas. This interpretation is not without difficulties as we shall see below, but at least it makes more sense than the referent of the signs being a sensation in my own mind.

On my reading, however, there is a certain amount of ambiguity in the texts, and I don't think that Yolton's reading of the 'inverse-sign' relationship is forced on us. The referent of the pronoun 'it' ('*la*' in French) in the last sentence in the above quotation from *Le Monde* could be, I think, either the idea (as Yolton reads it) or the light, since both '*idée*' and '*lumière*' are feminine. And the next sentence after the one quoted would seem to support the interpretation that it is light ('*la lumière*') rather than our idea ('*l'idée*') that is the referent of '*la*'. It reads: 'And is it not thus that she [nature] has established laughter and tears, to make us read joy and sadness on the face of men?'<sup>34</sup> For surely the joy and sadness we read on the face of men is not a sensation in our minds, but the joy or sadness they are feeling. Since the cases are said to be parallel, an external referent in the last sentence would support a choice of the external referent (light) in the preceding sentence also.

Second, regardless of what the motions in our brains are signs *of* or *for*, there are serious difficulties with the claim that something of which the mind is not aware can serve as a sign for it. Yolton speaks of the mind 'responding' to the brain motions, says the physical motions 'are interpreted by the mind', and describes the mind as 'reading the physical motions, as it does the tears and smiles of a face'.<sup>35</sup> Some very deep philosophical problems lurk just below the surface here. To what extent is it legitimate to speak of my mind doing things of which I am not and cannot possibly be aware? Does doing this not introduce some sort of homunculus? Does Descartes successfully avoid a homunculus, and is Yolton able to do so?

In *Descartes on Seeing*, I argued that since the basic mechanism of vision according to Descartes involves a point-to-point projection of the pattern of motions produced on the retina to the cerebral cavities, and ultimately to the pineal gland (the images from the two eyes being merged), he needs to postulate some sort of corrective mechanisms in order to explain why we do not see things as they are represented in the retinal image, and that at least some of the corrective judgments he hypothesises do commit him to a homunculus in spite of himself.<sup>36</sup>

Whether Yolton's version of the natural sign theory can escape postulating a homunculus is not clear. It depends on how we understand what is occurring when the mind is said to be 'interpreting' or 'reading' the physical motions. One way of reading this is what Wilson calls the presentation model, in which the brain presents something (a pattern of motions) to the mind. She points out (correctly I believe) how very pervasive this model is in Descartes' writings, and argues that one cannot easily dismiss it as merely metaphorical. Yolton actually seems willing to allow his use of the term 'interpreting' to be understood along these lines. He says: '... physical events are interpreted by the mind. Descartes has this interpretation in mind when he speaks of the mind attending to or studying the figures on the pineal gland.'<sup>37</sup> But this latter passage seems very clearly

to involve a homunculus; interpreting and reading are things people do, and this is even more evidently true of attending to or studying. And if he does postulate a homunculus who inspects the patterns of excitation in the brain and reads or interprets them, then the task of this homunculus will obviously be an impossible one.<sup>38</sup> Even the more intuitively plausible variant of the homunculus that Descartes introduced to explain distance, size, and shape perception would have to perform highly complex calculations with lightning speed, and this led Malebranche in *Eclaircissement XVII*<sup>39</sup> to conclude that no finite intelligence could do this and that therefore it is God who causes our perceptual ideas.

Yolton believes that he can avoid postulating a homunculus. For, on his view, the sign relation and the semantic interaction occur unconsciously, and he thinks that various contemporary theorists, who talk of things like subpersonal processing at a preconscious level, are or will be able to explain what is going on in a way that avoids postulating a homunculus. I do not think this will work, and have doubts generally about attempts to pull a cognitive rabbit out of a material hat<sup>40</sup> in this sort of way, but cannot go into this issue here.

Third, it is not at all clear that Descartes in the first chapter of *Le Monde* really means to deny a causal relationship between the motions of the light particles or motions in our brain and our sensation of light, and if he does not do so in this passage, which is the primary source of the natural signs theory, then this does tend to seriously undermine any claim that he denied brain to mind causality. In the first paragraph of the chapter he said that he is trying to get us to realise that there may be a difference between the sensation we have of light and what it is in the objects that 'produces (*produit*)' this sensation within us. He also speaks of nature having established a sign 'which makes us have the sensation of light (*que nous fasse avoir le sentiment de la lumière*). Both 'producing' and 'making us have a sensation' sound like there is a causal relationship involved, and thus the most natural reading of this chapter of *Le Monde* would seem to be that Descartes is merely cautioning us against supposing that there must be a similarity between the idea and its cause – not denying the existence of a causal relationship entirely.<sup>41</sup> In fact, Yolton himself seems to concede this point, for immediately after his discussion of the natural signs theory in *Le Monde*, he cites several passages where he says that Descartes uses the term 'sign' in the same way as he did in *Le Monde*. But both of them are cases where Descartes explicitly uses the term 'cause' to describe the relation between motions in the brain and sensations in the soul, noting that this occurs as a result of the institution of nature.

Fourth, if the causal locution proves so pervasive and closely intertwined with everything else, including even the natural signs locution, it would seem we cannot make the attractively simple move of saying that there is a causal interaction between object and brain and a semantic or signifiatory interaction between brain and mind, and that these two

processes are entirely distinct from each other. How then are the causal and the semantic interactions connected with each other? Are we perhaps dealing with two different (perhaps complementary) languages for describing the same process? Stephen Gaukroger criticises Yolton for tending to treat the causal-mechanical process and the significatory process as independent in *Perceptual Acquaintance*.<sup>42</sup> In *Perception and Reality*, Yolton tries to explain their connection further, saying:

The causal and significatory relations are linked. They have as their vehicle one and the same process, a physical process. When that process disturbs sense organs and brain, there is a causal rooting in the physical world. The disturbance of the brain becomes a sign for the sentient organism whose reaction, a sensation, is what that sign *signifies*.<sup>43</sup>

He also speaks of causal language and noncausal language and cites the natural signs doctrine in *Le Monde* as an example of a noncausal language for discussing what occurs in perception, but on the next page says Descartes is trying to ‘preserve an interaction between body and mind which is not causal, or *which is more than causal*’.<sup>44</sup> But saying a relation is noncausal and saying it is also something more in addition to being causal are very different. Is Yolton merely insisting that, yes, more is going on in perception than just bodies bumping up against each other and the physical changes that occur in them as a result – that in fact cognition, meaning, and perceptual awareness somehow emerge from this process? If this is all he is saying, then I am not sure who he takes himself to be arguing against.

And if Yolton does in fact want to *replace* the causal locution for talking about the connection between the brain and the mind with the natural signs locution, what, exactly, turns on whether we say that motions in our brain cause certain sensations as a result of the ‘institution of nature’, and saying that our sensations or perceptual ideas are the mind’s significatory response to the motions occurring in the brain (a capacity which it just naturally has). Something very much like Descartes’ ‘institution of nature’ must be invoked in both cases. Granted, the mind might *seem* to be more active if we speak of it as responding or reacting to motions in the brain, but the sense in which it is active is extremely unclear.

Finally, using the language analogy to elucidate the connection between brain motions and the mind in perception really does not go very far toward enabling us to understand what is actually going on. He cannot possibly be saying that the mind inspects the patterns of excitation in the brain and reads or interprets them. This cannot be done without introducing a homunculus, and if a homunculus is introduced here it is immediately obvious that its task would be an impossible one. So just what one is asserting in saying that brain motions serve as natural signs is quite unclear.

Harry Bracken, in his review of *Perceptual Acquaintance* puts the point quite well. He says:

I have always assumed that the *semantic* talk in these Cartesian philosophers was meant to indicate that the relation involved was *sui generis*, and that it was neither necessary nor causal nor 'resembling'... One appeals to the 'semantic' story not because one knows how language is 'about' the world but precisely because one does not... With respect to translating ontology into semantics, it can only advance our understanding if we know how natural languages ... are about the world.<sup>45</sup>

When struggling to articulate how the semantic or significatory interaction works, Yolton sometimes says the natural signs (motions in the brain) 'trigger' specific sensations and ideas.<sup>46</sup> But this is mere metaphor, as he himself acknowledges. He says:

I have been suggesting that brain motions play two roles, one responding to physical motions coming from the environment, the other triggering conscious reactions in perceivers. This latter role *is* far from clear, and its intelligibility *is* in doubt, but its importance lies in its suggestion of two interacting relations between perceivers and external objects.<sup>47</sup>

A similar sort of tentativeness occurs in his response to MacKenzie.<sup>48</sup> He says: 'When brain states mean something to the mind, some interactive process occurs. It *may* [italics added] be no more illuminating to speak of *meaning* than to speak of *causing* in such a context, but we need to recognize the kind difference between causing and meaning.'

That Yolton has difficulty articulating clearly just how perception works is not to be wondered at. There is something unique about perception, and I am inclined to think that neither the analogy with our capacity to understand a language, nor the analogy with the sort of causality at work between physical objects, is a very good one. I am reminded of Judith Thomson's famous analogy between an unwanted pregnancy, and being kidnapped and hooked up to an unconscious violinist. Nothing can be really analogous to pregnancy, as it is that process through which life comes to be. And perception, likewise, is the root or source of all our knowledge; it is that process through which the world comes to be for me. Everything else presupposes it.<sup>49</sup> We cannot somehow get underneath perception or behind it to discover how our perceptual knowledge is grounded.<sup>50</sup> Science may try to, but scientists must rely on their senses; a scientific account of perception presupposes our ability to identify and measure things. An outside person can discover certain correlations between patterns of excitement in the brain and perceptual awareness,

but this does not tell us what causal or signficatory relationships hold between them.

No matter how we talk about brain motions ‘triggering’, or ‘causing’ sensations, there is a level of brute fact that resists further explanation. And I am not at all sure, when one gets down to this level, that it makes any difference at all whether we say that certain motions in the brain cause certain ideas because that is the way our minds and bodies are joined, or whether we say that the mind has a natural function of reacting to brain motions as signs. In either case, our having certain sensations when certain motions occur in our brains is simply a brute fact resting on something very like Descartes’ institution of Nature.

Questions about perception easily give rise to theological questions, and indeed during the early modern period these usually lie quite close to the surface. The ‘institution of Nature’ in Descartes is, of course, rooted in God’s choice to join our minds to our bodies in such a way that we have certain sensations when certain motions occur in our brains (which, being good, he did in such a way as to be conducive to the well-being of the soul–body composite), so for him there is good reason to trust capacities we have by the institution of Nature. But as Thomas Reid puts it, ‘he who is persuaded that he is the workmanship of God, and that it is a part of his constitution to believe his senses, may think that a good reason to confirm his belief [in the evidence of his senses]’, but ‘a man would believe his senses though he had no notion of a deity’.<sup>51</sup> Yolton eschews explicit consideration of both metaphysics and theology, but I am not at all sure that his analysis gains in clarity from doing so.

## Notes

- 1 *Descartes on Seeing: Epistemology and Visual Perception* (Carbondale, 1993).
- 2 At least, this is how I read his remarks in J.W. Yolton, *Perception and Reality: A History from Descartes to Kant* (Ithaca, 1996), 15.
- 3 J.W. Yolton, *Perceptual Acquaintance* (Oxford, 1984), 19.
- 4 *Ibid.*, 19.
- 5 Margaret Wilson, ‘Descartes on the origin of sensation’, *Philosophical Topics* vol. 19 (1991).
- 6 *Perceptual Acquaintance*, 30.
- 7 *Ibid.*, 30.
- 8 *Perception and Reality*, 12–13.
- 9 *Perceptual Acquaintance*, 19.
- 10 A particularly clear instance of this occurs in his well known letter to Princess Elizabeth in which he speaks of the body acting upon [‘*agir sur*’] the soul [‘*l’âme*’], in ‘causing its sensations and passions’ [‘*en causant ses sentiments et ses passions*’]. AT iii. 665.
- 11 She cites in support of this a letter to Clerselier in which Descartes essentially comes out and says that just because the soul and body have different natures, this does not prevent them from being able to act the one upon the other. AT ix-B. 213.
- 12 He simply asserts that Descartes was searching for an alternative to a causal

- relation (*Perceptual Acquaintance*, 30), but fails to cite texts indicating that this was Descartes' intention.
- 13 Wilson (op. cit., 294) argues that there is 'a real conflict between ways in which Descartes thinks about the origin of sensory ideas in different contexts', and this seems to me to be true.
- 14 There are numerous examples of this terminology. The example Wilson gives is from *Traité de l'homme* (AT xi. 149).
- 15 The main text where this is articulated is the first chapter of *Le Monde*.
- 16 Wilson, op. cit., 297–8.
- 17 Yolton, *Perception and Reality*, 199.
- 18 Although Wilson correctly acknowledges that he does sometimes use terminology like 'impress' which suggests this way of thinking (318 n. 23).
- 19 There also appears to be a misreading of Wilson, in that Yolton speaks of 'the heterogeneity of causation' (meaning there are two sorts of causal processes) when the heterogeneity Wilson was speaking of was the heterogeneity in nature between mind and body.
- 20 Yolton, *Perceptual Acquaintance*, 18–19.
- 21 *Perception and Reality*, 14. Italics mine.
- 22 Ibid., 190. Italics on 'perhaps' mine.
- 23 At *ibid.*, 199, he twice juxtaposes the two terms in a way which would seem to indicate that he regards them as interchangeable terms. If they were, then of course the slide in that paragraph from two different sorts of causation to two different sorts of interaction would be legitimate.
- 24 The underlying reason seems to be his desire to avoid a purely physicalistic account of perception – see, e.g. his argument that those who reject the distinction between causal and signficatory reactions will wind up abolishing the signficatory and with it, conscious awareness itself (op. cit., 74). Why this should be so, however, is not entirely clear to me.
- 25 For example, the Port-Royal *Logic* lists 23 different scholastic distinctions within the category of efficient causes: see Gordon Baker and Katherine Morris, *Descartes' Dualism* (London, 1998), 168 n. 5.
- 26 AT xi. 4.
- 27 *Perception and Reality*, 209.
- 28 *Perceptual Acquaintance*, 24.
- 29 *Perception and Reality*, 8.
- 30 *Perceptual Acquaintance*, 30.
- 31 *Perception and Reality*, 209–10.
- 32 *Perceptual Acquaintance*, 24.
- 33 Thinkers as different as Aristotle and J.J. Gibson make this point.
- 34 AT xi. 4.
- 35 *Perceptual Acquaintance*, 30.
- 36 I say 'in spite of himself' since he is clearly aware of the dangers of this sort of move, and doesn't want to fall into the error of thinking that we have somehow eyes within our brain with which we can look at the retinal image (AT vi. 130).
- 37 *Perceptual Acquaintance*, 30.
- 38 My objection here, is, I think, similar to Catherine Wilson's objection that the semantic account will not work because it requires a 'code reader' and that reading all the nuances of complex brain motions is a feat the mind cannot perform. See her 'Constancy, emergence, and illusions: Obstacles to a naturalistic theory of vision', in Steven Nadler, ed., *Causation in Early Modern Philosophy* (University Park, Penn., 1993), 261.
- 39 Nicolas Malebranche, *Oeuvres complètes* (Paris, 1958–65), iii. 344. For an extended discussion of the visual theories of Malebranche, Locke and Berkeley,

see my dissertation 'The Retreat from Realism: Philosophical Theories of Vision from Descartes to Berkeley', University of Wisconsin, Madison, 1984.

40 A phrase for which I am indebted to my husband, Phil Devine.

41 This interpretation is supported by his remarks in the last paragraph of the chapter (AT xi. 6) in which he explains that his purpose has been to free his readers from their assumption that light is the same in objects as it is in our eyes, so that they will be open to examine with him now more closely just what light really is. And in the first paragraph also, he states his intention to question the assumption that our ideas are similar to the things from which they proceed (AT xi. 3).

42 *Descartes: An Intellectual Biography* (Oxford, 1995), 287 n. 161.

43 *Perception and Reality*, 208.

44 *Ibid.*, 73–4. Italics added.

45 *International Studies in Philosophy* vol. 21 (1989), 129.

46 *Perception and Reality*, 73, 198.

47 *Ibid.*, 198.

48 *Ibid.*, 204.

49 This point has been made by a number of philosophers, ranging from Thomas Reid to Merleau Ponty.

50 Thomas Reid puts the point nicely when he talks about 'nature working in the dark' or 'being led to our perceptual knowledge in the dark and knowing not how we came by it' in *Essays on the Intellectual Powers of Man*, II. xxi.

51 *Ibid.*