

# REALISM AND APPEARANCES

*An essay in ontology*

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## *Mind, matter and sense qualia*

Whether or not mental states turn out to be physical states of the brain is a matter of whether or not cognitive neuroscience eventually succeeds in discovering systematic neural analogs for all of the intrinsic and causal properties of mental states.

Paul Churchland, *The Engine of Reason, the Seat of the Soul* (1995), p. 206

Whatever explanation of cognition will in the end prove satisfactory, we can at least suppose that only one kind of existence – the real kind – will be involved. Ockham did not share the faith of many today that the mind is wholly physical. But if the mind must be explained in terms of the nonphysical, at least it need not be explained in terms of the nonreal.

Robert Pasnau, *Theories of Cognition in the Later Middle Ages* (1997), p. 85

Traditionally, especially within the period of Modern Philosophy (e.g., from Descartes to Kant), when philosophers turned their attention to perception and our knowledge of the external world, a standard set of issues, problems, principles and concepts were invoked, assumed and occasionally modified. A recent statement of the representative theory of perception characterized that theory as holding to two claims: mental operations of the mind arise “from causal impingement by the world” and the mind has “mental states and events which represent the world.”<sup>1</sup>

<sup>1</sup> Grant Gillett, *Representation, Meaning and Thought* (Oxford: Clarendon Press, 1992). He calls this the empiricist representational theory. Another recent more detailed account of this theory (also referred to as “the causal theory” or “indirect realist theory”) is given by Robert Oakes, who says that “awareness of (the surface of) external objects – of those objects that are before our sense-organs – can take place only by virtue of awareness of entities which constitute their effects upon our sensory apparatus. Entities of this latter sort are not, of course, before our sense-organs, but, to the contrary, are interior to consciousness. Moreover, it is clear that these phenomenal ‘qualia’ or private objects of awareness are such that their *esse* just consists in our awareness of them” (“Representational Sensing: What’s the Problem?”, in *New Representationalisms: Essays in the Philosophy of Perception*, ed. Edmond Wright (Aldershot: Arebury, 1993), p. 70). The term “qualia,” as used by Oakes and others, replaces the older “idea.” In treating qualia as private objects internal to consciousness, Oakes is able to state the representative theory in its usual, traditional form.

Analyses of the representative relation varied and questions were raised about the causal relation. Some writers became uneasy with the notion that mental contents (ideas) could be caused by physical (brain) events. That uneasiness was not due entirely to the acceptance of an ontology in which physical events are assigned to one kind of category or substance, and mental events to another kind of category or substance. There are passages in Descartes, Glanvill, Cudworth and, later, Kant that indicate a two-fold relation between perceiver and the world: a physical causal relation from objects to brain, and a signficatory or semantic relation between brain and mind.<sup>2</sup>

It was generally recognized that the way the world appears to us, the world *as known*, differs qualitatively from the world itself, the world *that is known*. The usual vocabulary for talking about, even for describing, the world as known was the language of ideas. Hobbes used the term “appearance” rather than “idea.” Kant talked of “representations,” but he also employed the term “phenomena” when referring to the world as known. “Appearance” and “phenomena” avoid the idealistic and mentalistic implication of “idea,” which, it is thought, makes the world a set of mental ideas; but a case can be made for saying that the term “idea” did not have idealistic implications for most of the writers (even Berkeley) who employed it.<sup>3</sup> Descartes’s use of the term “idea” was a modification of scholastic “intelligible species”; his use was reinforced by other French writers such as Malebranche and Arnauld, and in Britain by Locke’s heavy employment of the term. The vocabulary of ideas was also a way of adhering to two common principles: “no cognition at a distance” and “what is known must be present to the mind.”

Those principles played an influential role in the history of perception theory, even appearing in our own time. Malebranche used those principles to defend his account of ideas as special entities present to the mind. Physical objects, he argued, cannot be present to the immaterial, nonphysical mind. Arnauld lectured Malebranche on the concept of

Footnote 1 (*cont.*)

I have argued that the term “idea” in the writings of Locke does not always fit this internalist interpretation. With Berkeley, “idea” comes out of the closet of the mind, as it does also for Hume. My use of the term “qualia” in this study tries to make it refer to external qualities, qualities that are sensory appearances to perceivers.

<sup>2</sup> I have presented and analyzed this second interactive relation in *Perception and Reality: A History from Descartes to Kant* (Ithaca: Cornell University Press, 1996), ch. 8 (1996). See also *Perceptual Acquaintance From Descartes to Reid* (Minneapolis: University of Minnesota Press and Oxford: Blackwell, 1984), ch. 11. See also chapter 2 below. <sup>3</sup> See my *Perception and Reality*, ch. 6.

“presence,” insisting that “present to the mind” could only be taken as a cognitive presence: to be present to or with the mind just means is known or perceived by the mind (or the person). Arnauld got rid of Malebranche’s special idea entities, opening the way he believed to a realism, possibly even a direct realism. Direct realism does not rule out ideational contents in the perceptual process. Other philosophers, including some very recent ones, seem to think direct realism requires objects themselves to be present with the mind, apparently failing to appreciate Arnauld’s lesson about cognitive presence. These later writers also seem to equivocate on the nature of presence, literal or metaphorical.<sup>4</sup> Arnauld’s analysis is more forthright in distinguishing spatial presence from cognitive presence. That distinction was not always explicit in subsequent writers, but it does resurface in Berkeley’s careful explication of “existence in the mind” and it was, I believe, instrumental in the development of what I have called “the epistemic shift” in perception theory from Descartes to Kant.<sup>5</sup> That shift, the change from the language of ontology (the being of the object in the mind) to the epistemic language of being known, is of fundamental importance for understanding modern philosophy.

The concept of mind also underwent some changes in the modern period. From designating (along with “soul”) an immaterial substance with ideas as modes or properties of a substance and as possessing various mental faculties and operations, the substance nature of mind gradually gave way to functional features. In some writers, mind was

<sup>4</sup> I called attention in *Perception and Reality* (ch. 4) to some articles in *Mind* as recently as 1986 where the notion of presence to or with the mind is employed in an ambiguous way in arguments against direct realism. Even more recently, Ruth Garrett Millikan uses that notion in her Patrick Romanell Lecture on Philosophical Naturalism, “How We Make Our Ideas Clear: Empiricist Epistemology for Empirical Concepts” (printed in the *Proceedings and Addresses of the American Philosophical Association*, November 1998). Professor Millikan wants to locate the mind and its contents “among the natural objects” (p. 67). She says, sounding like Malebranche, that “knowing about other natural objects is not constituted by the presence of those objects directly within or before the conscious mind.” On the same page, she goes on to say “The original or most immediate objects of reference are not before the mind but in the natural world.” She remarks rather emphatically that “Just as with external objects, we cannot take properties of external objects to be in or directly before the mind. That would not be a ‘natural’ place for the properties of external objects to be!” She chastizes Russell for assuming, as she interprets him, that knowledge by acquaintance requires the object to be in the mind: “I hope it is fair to say that few today will accept Russell’s picture of what it is to know what one is thinking about. If one is thinking about an external object, knowing what one is thinking of cannot be having the object of thought within or before the conscious mind” (p. 69). I think we can say that the notion of presence to the mind is one of the most curious and persistent notions in the history of philosophy.

<sup>5</sup> See *Perception and Reality*, Conclusion, pp. 215–22.

more or less replaced by the operations themselves, such as thinking, willing, believing, sensing, imagining, etc. The language of mind was often borrowed from the language of physical objects. There was not a ready-to-hand psychological vocabulary. Most writers were aware that physical object language does not apply literally to mind and its operations; some even warned of the dangers of using that language. Metaphors and analogies of mirrors, dark closets, impressions, force and vivacity were used in efforts to describe and characterize mentality.

All writers in the early modern period were aware of the underlying physiology, even neurophysiology, of mental operations: mentality is supported by physicality. Some rather detailed physiologies were described and theorized about; some authors even postulated very specific correspondences between mental processes and states *and* neurophysiological areas and activity.<sup>6</sup> But neural and mental operations, brain and mind, were hardly ever identified as the same; they were not merged into one in the accounts given by those writers. Materialism was frequently charged, as against Hobbes or Spinoza; but those who leveled these charges ignored (as do many writers today) Hobbes's very explicit distinction between appearance and reality, and few understood that Spinoza's one substance possessed both extension (physical) and thought (mental) properties. If the first of these properties made Spinoza's substance material, the second should make it immaterial, but that subtlety was lost on most critics. It was just that combination of physical and mental properties in one substance that led to Locke's being seen as a materialist, or at least as lending support for materialism. Locke had of course made the suggestion that thought could be made a property of certain organized matter (the brain), without thereby reducing thought to extension.<sup>7</sup> Other writers after Locke, e.g., Priestley, Toland and Diderot followed this path, but only after developing a concept of matter that was largely force and power, not corpuscular (hard, impenetrable, inactive) particles.<sup>8</sup> These writers softened the distinction between thought and extension, but those properties were still different sorts of properties and activities associated with brain matter.

<sup>6</sup> I discuss some of the eighteenth-century physiologists who explored these specific correlations in *Locke and French Materialism* (Oxford: Clarendon Press, 1991).

<sup>7</sup> For a discussion of Locke's suggestion, and the controversy it aroused, see my *Thinking Matter: Materialism in Eighteenth-Century Britain* (Minneapolis: University of Minnesota Press and Oxford: Blackwell, 1983).

<sup>8</sup> Diderot and many medical researchers in the eighteenth century talk of muscle and nervous tissue as having the property of irritability. Hence, their concept of matter was directed towards the living body. Such matter had activity as part of its nature.

## I

Priestley liked to say that he immaterialized matter. If we find that characterization too rooted in the traditional language of two substances, material and immaterial, we can still recognize the changed concept of matter from dead, inactive to active, live matter. When today, Paul Churchland<sup>9</sup> asserts that “Matter itself is neither intrinsically alive nor intrinsically dead,” and then explains that “certain complex organizations of matter will be alive if they function in certain ways, and dead if they fail thus to function,” we can ask “what are the ways in which matter can function so as to meet the criterion of alive?” (p. 190). Noticing that the terms “organization” and “complex” in this statement remind us of the very similar language used by Locke in his suggestion of thinking matter (*Essay* 4.3.6), we can ask “does that alive matter have thought as one of its properties or functions?” In one passage, Churchland comes close to the view suggested by Locke and adopted by Priestley, that the brain has both physical and mental states (p. 203), but there he is characterizing Searle’s account, so he is probably not speaking in his own voice. He does not use the term “thought,” so we cannot answer the question put in those terms. “Consciousness” is the term he uses. It is not clear just what the status of consciousness is in his account, he seems somewhat ambivalent about it. On the one hand, he suggests that it does not have any unique metaphysical status (p. 189): just as biological life has “turned out to be an intricate but purely physical phenomenon”, consciousness might have a similar “fate” (p. 191). On the other hand, there are passages in which he says consciousness “is at least a real and an important mental phenomenon,” a phenomenon “that neuroscience must acknowledge as a prime target of its explanatory enterprise” (p. 213). The suggestion here seems to be that a neuroscientific *explanation* of consciousness would somehow affect its metaphysical status, or even eliminate any such status. “Metaphysical” and “nonphysical” designate features that Churchland does not like (cf. p. 196). A neuroscientific explanation of the *phenomenon* of consciousness (an “explanatory reduction”) is a substitute for a *metaphysical* or *ontological* reduction of the phenomenon to neural functions and structures (p. 223).<sup>10</sup>

Churchland does not give up on the stronger, more decisive reduction.

<sup>9</sup> *The Engine of Reason, the Seat of the Soul: A Philosophical Journey into the Brain* (Cambridge, Mass.: MIT Press, 1995).

<sup>10</sup> For an extensive defence of phenomenal consciousness, see Charles P. Siewert’s *The Significance of Consciousness* (Princeton: Princeton University Press, 1998).



At least, in a number of places he employs the language of a status-reduction (a phrase I use to avoid the metaphysical vocabulary he does not like). He locates the contents of consciousness (he does not, I think, say what the contents are) in specific areas of the brain (p. 224). The status question will apparently be resolved in favor of brain states if neuroscientists succeed in discovering “systematic neural analogs for all of the intrinsic and causal properties of mental states” (p. 206). Neural analogs will dissolve that of which they are analogs! Perhaps he does not want to go that far, since later he refers to future neural imaging techniques that may enable us to “watch real-time neural activity as the conscious subject is engaged in any number of perceptual, cognitive, deliberative, or motor activities” (p. 300). The perceptual, cognitive, deliberative and motor activities of the subject will be *correlated* with, not reduced to, neural activity.

The same ambivalence can be found in other passages where he uses the language of full status-reduction. For example, the taste of a peach (he writes “subjective taste”) “just *is* the activation pattern across the four types of tongue receptors, as re-represented downstream in one’s taste cortex” (p. 23). Later, he softens this claim: it is *possible* that “the taste sensation of a peach is identical with a four-element activation vector in the gustatory pathways” (p. 193; cf. p. 205). Elsewhere, in speaking of finding a home for sensory qualia, he says the “problem is to find a plausible home for them within a purely physicalistic framework” (p. 250), but two pages later he returns to correlation, not eliminative, talk (p. 252). However, on p. 208 he is quite explicit about the program he has in mind: “If science is to achieve a systematic reduction of mental phenomena to neural phenomena, the demands it must meet are stiff indeed. Ideally, it must reconstruct in neurodynamical terms all of the mental phenomena antecedently known to us.” If this reconstruction can be done, “it should also teach us some things about the behavior of mental phenomena that we did not already know, things that arise from hidden peculiarities of the neural substrate.” That program sounds like a full status-reduction, despite the reference to mental *phenomena* (and also to “thermal phenomena” in the same passage). In these paragraphs Churchland also speaks of the explanatory domains of science, so there may still be some uncertainty about what sort of reduction he intends.

Churchland sometimes writes, in less reductive terms, of mental phenomena as just the systematic *expression* of “suitably organized physical phenomena” (p. 211); various phenomena are said to be *associated with* specific brain events (p. 212), or he writes of cognitive phenomena that

might be *realized in* “some physical or electronic network” (p. 212). Such phenomena are also said to *arise* “naturally in a recurrent [neural] network” (p. 219); recurrent networks are also said to *produce* “typical conscious phenomena” (p. 221). I would think that examples of typical conscious phenomena would be my thinking about Churchland’s effective examples and analogies, my seeing the blue jacket of his fascinating book, my hearing the logs in my fireplace snapping as they burn, my recalling some passage about thinking matter in Locke’s *Essay*. Churchland says he wants to develop a theory “of cognitive activity and conscious intelligence that is genuinely adequate to the phenomena before us” (p. 235), but the theory he finds adequate is one that builds on the complex and specific neuroscience presented in his book. From his point of view, with his knowledge of the latest technologies, research and theories in neuroscience, conscious phenomena such as those on my list are made intelligible and understandable “on purely physicalist assumptions” (p. 206). An understanding of the neural correlates of particular conscious and cognitive experiences makes those experiences intelligible to him.

Precisely what an understanding of neural networks will yield about conscious phenomena, what it is about mentality that is rendered intelligible by such an understanding, is not at all clear from Churchland’s account. It would seem too strong to say he denies consciousness and mental phenomena, because he does speak of them and says they are correlates of neural events which they express. His inclination seems to be to shy away from anything that might be nonphysical, but it is just those nonphysical states and events that he wants to explain and perhaps identify with neural networks. At best, I would say his language is ambiguous; perhaps he is ambivalent about the mental.

There are some similar but less pronounced ambiguities (but not, I think, ambivalence or confusions) over the status of cognitive or mental phenomena and the qualia of appearance in another recent important study, C. L. Hardin’s *Color for Philosophers*.<sup>11</sup> But Hardin is emphatic about protecting phenomenal descriptions: “we need not and cannot forego” such descriptions (p. 111). He also says that sensory phenomenology “must be taken very seriously” (p. 134). He is not concerned in this work with the description or analysis of phenomena, or of the sensory domain. His concern and contribution is an account of the neural bases of the “perceived qualitative similarities and differences” in our color

<sup>11</sup> *Color for Philosophers: Unweaving the Rainbow*, expanded edn. (Indianapolis: Hackett, 1988).

experiences (p. 131; cf. p. 132). Those qualitative features are (as Churchland also says) an *expression* of “the neural coding,” conscious phenomena are *represented* at the neural level, they are *embodied* in neural structures (p. 112). The *ground* of the resemblances between certain colors “must come from outside the phenomenal domain and yet it must bear an intrinsic relationship to experienced color” (p. 132). Hardin also speaks of a phenomenal-neural mapping (p. 137). An understanding of our sensory phenomenal experiences can be had from the details of the neural coding of those experiences, the coding may even *account for* our experiences (p. 135). I am not sure I understand what it would account for – just the existence of sensory experience, e.g., of visual experiences, of seen color? That there is a biological and neurological substrate to conscious experiences cannot be denied. Precisely how that substrate “determines” the visual experiences is more difficult to discover. Does the rich knowledge of detailed, specific correspondences that Hardin describes yield an understanding of how a phenomenal domain comes into being? We can say that, without the biological substrate, there will be no phenomenal domain, but does that fact indicate a relation of identity? The program of accounting for, of explaining, the phenomenal in terms of the details of the neural structure certainly is important.

I guess that the details of neural coding give us more information about phenomenal experience than just specific correlations, but none of those details would *describe* the experience. Description would have to be done in phenomenal and psychological language, not in neural language. Keeping the two languages and the two domains separate although closely linked is what I take Hardin to be doing, but his interest in that work is mainly in the neural domain. He uses a nice dictum, “render unto matter, what is matter’s.” I urge a corresponding dictum, “render unto phenomena what is phenomena’s” or, “render unto experience what is experience’s.” However, there are a few places where his language seems to go against this important distinction. For example, he writes: “qualitative similarities and differences among sensory states amount, in the final analysis, to similarities and differences in sensory coding” (p. 133). The “sensory coding” refers, I think, to neural coding. If so, he seems to say the sensory *amounts to* the neural. How strong is “amounts to”? On p. 137, he says we could *identify* “color perceptions with a biological substrate.” The term “identify” is rather strong. Has he not violated his insistence on not denying the phenomenal (perceptual) domain?

Hardin characterizes the account of the neural bases of color experi-

ences as “materialism,” assuring us that materialism is “capable of dealing with the qualitative character of sensory experience” (p. 134).<sup>12</sup> At the same time, he occasionally makes a claim stronger than just “understanding” or “accounting for” or “dealing with”: he speaks of “transposing questions about the phenomenal colors into questions about neural processes” (p. 114) and he suggests, as we just saw, that we could *identify* “color perceptions with a biological substrate” (p. 137).

## II

I have claimed that when Locke suggested that God could have added the property of thought to certain organized matter (i.e., the brain), he did not mean thought would then cease to be thought.<sup>13</sup> Under this possibility, the brain would have two different kinds of properties, contradictory properties according to many of his contemporaries. Similarly, I suggest that Priestley’s or Diderot’s active matter of the brain would still preserve the difference between physical and mental activity: a dualism of properties and of different kinds of activity.<sup>14</sup> These writers resisted the temptation to identify the one property or action with the other. If we consider them to be materialists (as many of their contemporaries did), we should recognize that it was not a status-reductive materialism. Nor were the systems of Hobbes and Spinoza materialisms of this sort.

The more recent talk by our contemporaries of sense qualia and conscious phenomena seems at first glance to be calling attention to the differences between these and neural phenomena. It would appear that they too recognize a difference of kind between these phenomena, between my thinking about what these writers say, my seeing red roses in my garden, my hearing the sounds of clocks, bells, birds and whatever complex neural activities that are the (necessary) condition for my conscious mental states. But both Churchland and Hardin (the former much more than the latter) tend to blur the differences; both make some forthright claims of identity between phenomenal and neural. Whatever it is

<sup>12</sup> To apply the label of materialism to the fact (for it *is* a fact) that sense experiences of colors, sounds, tastes have neural bases seems odd. It is not clear just what “dealing with” those qualitative experiences involves. Materialism, I would think, more properly characterizes the program of *identifying* experiences with neural bases.

<sup>13</sup> Nor does the property of thought in Spinoza’s substance cease to be thought because it shares the same substance as the property of extension. A monistic doctrine of substance with two (in fact, infinite) attributes does not become a substance of only one property or attribute.

<sup>14</sup> David Chalmers discusses property dualism in his *The Conscious Mind. In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1996). See especially pp. 125, 136, 166, 370n2.

that an understanding of the complex neural networks and neural coding explains about sensory and conscious phenomena, I do not think it *explains away* those phenomena.

The temptation to move from explanatory-reduction to status-reduction arises, I suspect, from several sources. One source for Churchland is his dislike of (and perhaps disdain for) the older metaphysics of two substances, especially talk of nonphysical, immaterial entities. For example, in writing about Nagel's essay on bat experiences, Churchland says that nothing in Nagel's account "entails, indeed it no longer even suggests, that something about the bat's sensory states transcends understanding by the physical sciences" (p. 199). He then addresses the question of whether Nagel's account supports the view that mental states are nonphysical.

If one hopes to argue, then, that mental states have nonphysical features, one needs a better argument than Nagel's. It is of course possible that mental states do have phenomenological features. And it remains possible that one's autoconnected epistemic pathways are precisely what detect them, which is essentially what Nagel is insisting. These ideas are certainly not impossible. Quite the contrary. But their credentials as default assumptions have now evaporated. The mere existence of autoconnected epistemic pathways, which almost every creature possesses, should no longer even suggest the existence of nonphysical features. If they do exist, it is the burden of some other argument to spotlight them. (p. 200)

The existence of nonphysical states can only be established by argument. Why would anyone think that the existence of autoconnected epistemic pathways in the brain would suggest the existence of nonphysical features? Apparently, Churchland thinks there are only two ways to establish the existence of nonphysical features: by pathways in the brain suggesting their existence or by use of some argument. Another source leading some writers to identify conscious phenomena with neural structures is their interest in and knowledge of neuroscientific research. Great progress has been made in neural mapping, in locating and understanding the intricate nature of the brain. The potential for dealing with mental defects through these latest developments in neuroscience (especially when linked with DNA research) is exciting and very promising. Both writers I have discussed have made important contributions, in Hardin's case, to our knowledge and understanding of color perception and the status of colors; in Churchland's case, by many fascinating suggestions about the neural underlay of consciousness.

There is a third possible source for the tendency to blur the distinction between conscious phenomena and neural structure: the language employed to describe the workings of the brain. While seventeenth- and eighteenth-century writers often used physical metaphors and analogies when describing mental phenomena, our contemporary writers apply mental or cognitive terms when referring to brain activity. We have become accustomed to the use of the concept of information applied to computers and other electronic machines. To speak of the brain as processing information need not imply any conscious or epistemic activity.<sup>15</sup> The way a computer or our brain processes input information is not the same as my processing the information about neural networks in Churchland's book. My brain can be said to analyze incoming information from my eyes and my thought processes as I struggle to understand what Churchland describes. Without the neural analysis, my understanding would not occur. It is the explicit application of cognitive language to the neural processing that I find curious, perhaps even misleading. Churchland occasionally speaks cautiously of "cognitive-like processes" in recurrent networks (p. 171), or of the brain's intended bodily behavior (placing the word "intended" in quotation marks, p. 93). Often, he is more explicit. His description of what he identifies as "the general model of cognition being explored in this book" is given in terms of brain functions only:

The brain's global trajectory, through its own neuronal-activation space, follows the well-oiled prototypical pathways that prior learning has carved out in that space; and the brain's global trajectory shifts from one prototype to another as an appropriate function of the brain's changing perceptual inputs. (pp. 171–2)

Elsewhere he speaks of "autoconnected epistemic pathways" in the brain (p. 200), the system of such pathways has a "cognitive grasp of the past" (p. 216), the networks are said to attend to events in the brain, that attention "is steerable by the networks' own cognitive activity" (p. 218). Later, the neural networks are said to "have automatic and certain

<sup>15</sup> For a recent example (by a practicing neuroscientist) of the use of the concept of information applied to the brain, see Gillet, *Representation*. He speaks of "the information-processing capacity of the brain" (p. 49). Gillet does go a bit further later in his book, referring to the brain's "cognitive processes" (p. 68). This way of speaking about brain activity has even invaded science reporting. In an article in *The New York Times* for October 13, 1998, "Placebos Prove So Powerful Even Experts Are Surprised," the reporter, Sandra Blakesele, refers to a new field of neuropsychology and its "expectancy theory." That theory, she explains, deals with "what the brain believes about the immediate future" (p. F4). The "brain's expectation" is also mentioned.

knowledge of their own cognitive activities” (p. 319). The brain is even said to be conscious (p. 252).<sup>16</sup>

So with this last remark, is Churchland after all agreeing with Locke’s suggestion about thought as a property of the brain? It may be so, but I am not sure that the various terms he ascribes to the brain – conscious, cognitive, epistemic, knowing, attending – carry the same meaning that we (and Locke) ordinarily accept for such terms. The statement of his model of cognition cited above for such terms does not express what I understand when I say “I believe the fire is out,” “I know that rose is a Queen Elizabeth,” or even “I see the red car in the driveway.” I am willing to take Churchland’s assurance that when I believe, know or see, my “brain’s global trajectory shifts from one prototype to another,” but those global trajectories do not describe my *experience* of believing, knowing, or seeing. So when he says the brain is conscious, I think he means something quite different from when I am conscious or aware of what he says. “Know,” “believe,” “see” and other such words designate actions which are to be described in phenomenological (with trepidation, I say introspective) terms, not global trajectories in the brain.

### III

Transferring these psychological terms to brain activity makes it easy for Churchland to slip from explanatory reduction to full-status reduction. That transference of cognitive terms also enables him to avoid a question that troubled the seventeenth- and eighteenth-century philosophers: “how can physicality cause mental events?” Churchland raises this very question while criticizing Nagel’s talk of mental states as non-physical.<sup>17</sup> How could the neural pathways, he asks, “interact with any nonphysical goings-on” (p. 200). The implied answer is, they could not.

<sup>16</sup> Jeff Coulter finds this use of terms such as “understand,” “recognize,” etc., applied to the brain a pervasive practise among present-day cognitivists: they “routinely reify and homogenize the properties of mental and experiential predicates” (“Neural Cartesianism: Comments on the Epistemology of the Cognitive Sciences”, in *The Future of the Cognitive Revolution*, ed. David Martel Johnson and Christina E. Erneling, New York: Oxford University Press, 1997, p. 294). Coulter characterizes this merger as a fallacy, “the fallacy of treating ‘recognizing’ and ‘understanding’ as predicable of someone’s brain, when they are person-level predicates” (p. 293). More generally, cognitivists “conceive of ‘perceptions’ as ‘neural representations’ arrived at via ‘computations on sensory inputs’ (Gregory, Marr), ‘memories’ as neurally encoded traces, ‘engrams’ ‘representations’ of experiences (Booth, Deutsch), ‘understanding’ as a neural-computational ‘process’ (Fodor, Chomsky), ‘imagining (something rotating)’ as ‘mentally rotating a neurally-realized image’ (Shepard), and so on” (p. 297).

<sup>17</sup> The reference is to Thomas Nagel’s famous essay, “What Is It Like to Be a Bat?”, *Philosophical Review*, 8, no.4 (1974).

Malebranche and Leibniz of course agreed and accordingly advanced occasionalism and pre-established harmony respectively as solutions. Locke and others freely admitted they did not know how physical processes caused ideas (mental contents). If Churchland were to accept a distinction, as he seems to in some of his remarks, between mental phenomena and their neural analogs, then he could recognize, as Hardin does, the need for two different languages or vocabularies: a language applicable to the phenomena (with the usual epistemic and psychological terms such as “see,” “hear,” “feel,” “believe,” “know,” “aware,” “attend”) and another language appropriate for characterizing neural action, structures and pathways. He could still use the first language, or some of it, in the account of neural activity, but he would then have to be explicit about that use being metaphorical when so applied. I am unable to determine, on the basis of his 1995 book, whether he would accept these two languages or two sets of vocabularies.

There is, however, one very curious example he uses that strongly suggests that he ignores the first language (the phenomenal language) while appropriating its epistemic vocabulary. The example, a thought experiment actually, is taken from Frank Jackson.<sup>18</sup> It is another way of posing Nagel’s question about “what’s it like to be a bat?” Jackson presents a neuroscientist named Mary who has had no color experience, no sensations of color, her world is strictly black and white.<sup>19</sup> Mary has never seen the color red, or had a sensation of that color. The question for Churchland is: “would she know what it is like to see red?” (p. 201). There may be some ambiguity about Churchland’s use of this hypothetical example. He phrases Jackson’s question both as “what is it like to see red?” and “what is it like actually to have a normal visual sensation of red?” It is not clear from his account whether he takes these two expressions to be the same. Is “seeing red” the same as “having the sensation of red”? I think he wants to draw a distinction between these expressions, a distinction which he believes enables him to use the second phrase to his advantage. Notice how he continues in this passage. Being a neuroscientist, Mary “has learned everything there is to know about the nature of the human visual system and about the way in which the brain discriminates and represents colors” (p. 201). Jackson concludes

<sup>18</sup> “Epiphenomenal Qualia,” *Philosophical Quarterly*, 32 (1982).

<sup>19</sup> Churchland suggests that we could think of Mary having her eyes tampered with in order to achieve the same black-and-white result: “I prefer the version where Mary’s eyes have high-tech chronic implants that flatten any spectral diversity in the incoming light. The only energy variations that get through to her retina are uniform across the entire spectrum” (p. 200).



that such a person would not know what it is like to see red, and thus there are limits to what physical science can tell us about conscious experience. Churchland challenges that conclusion. Mary, as a trained neuroscientist, Churchland says, is familiar with the sensation of red in other people (in their brains): “she’s seen it a thousand times before in the autoconnected pathways of others” (p. 202). What Mary is familiar with on Churchland’s account is the sensation of red, not the experience of seeing red. The sensation of red, the sensory state of red is identified by Churchland as a “70–20–30–Hertz coding triplet across the neurons of area V<sub>4</sub>”! The sensation of red turns out to be a state of the brain. A very strange notion of red and of seeing red. The ambiguity between “seeing red” and “having a sensation of red” thus leaves us with two interpretations. The implied answer to the question Churchland puts, “does Mary know what it is like to see red?,” would seem to be, in seeing the autoconnected pathways, Mary sees red! Is the other alternative any better, that Mary knows what it is like to have the sensation of red just by seeing the “70–20–30–Hertz coding triplet across the neurons of area V<sub>4</sub>”? This alternative strikes me as equally strange. When I have the sensation of red, I am not aware of neural events. To have the sensation of red is, I would think, to see red. So the conclusion should be that Mary definitely does not know what it is like to see red, nor does she know what it is like to have a sensation of red. What she knows is, at best, what is going on in a specific area of the brain when someone sees red or has the visual sensation of red. What Churchland opposes is a claim that what we see when we see red is a nonphysical quality. Hence his translation of seeing the red of a tomato into seeing the behavior of neural pathways.<sup>20</sup>

There is a distinction used by Churchland that he may think preserves the difference between phenomenal experience and brain processes, while avoiding the acceptance of any nonphysical ascription to sense qualia. He gives a number of examples of first-person *ways of knowing* about features of our own body, e.g., knowing the position of our limbs, the congestion in our lungs, the tension of certain muscles. The *object* of

<sup>20</sup> He does something similar with examples of light and heat, ignoring seen light and felt heat. “From the standpoint of uninformed common sense, light and its manifold sensory properties certainly seemed to be utterly different from anything so esoteric and alien as coupled electric and magnetic fields oscillating at a million billion cycles per second. And yet, the intuitive impression of vast differences notwithstanding, that is exactly what light turns out to be” (p. 206). It would be instructive to learn what he thinks the status of “seemings” is. They do not exist? For a similar treatment of heat, of the heat we feel when we open an oven door, see p. 207.

such first-person knowledge is something physical: limbs, lungs or muscles. From this, Churchland concludes: “The existence of a proprietary, first-person epistemological access to some phenomenon does not mean that the accessed phenomenon is nonphysical in nature” (p. 198). How does that conclusion apply to my knowledge or awareness of the sensation of red when I look at a rose or a tomato? The mode of awareness of the sensation or even of the sense qualia is first-personal, so Churchland wants to say that that knowledge or awareness also does not give us a nonphysical object, the sense qualia. He wants to say the object of this *way of knowing* is also physical, at least that its first-person status need not mean I am aware of something nonphysical. I am not concerned to defend saying that sense qualia are nonphysical. I do not think that is the important issue. The issue is, is what I know or am aware of when I have a sensation of red or the sensation of heat a specific state of my physical brain? Since Churchland has decided (in his status-reduction mood) that all that there is are physical states and events,<sup>21</sup> he is able to say that while the first-person way of knowing does differ (in kind?) from the scientific way of knowing, the objects are the same for both, i.e., states of autoconnected neural pathways.

Of course, even Mary’s “seeing” the sensation of red in the brains of other people (that is, her “seeing” brain events) involves sense qualia, the images on an MRI scanner or on the screen of some more advanced machine, or I suppose, on some other kind of machine that records the electrical–chemical processes of that area of the brain. Those sense qualia indicate (Churchland writes “show”) activity in specific areas of the brain. If Churchland wants to say that in seeing such images, in being aware of such sense qualia on the screen of some scanning machine, I am in effect really seeing a “70–20–30–Hertz coding triplet across the neurons of area V<sub>4</sub>,” I guess he is free to do so. But we should be quite clear: what Mary sees visually is a visual shape. Similarly, when I have the sensation of red while looking at a red tomato, I am in fact seeing a tomato. I see the tomato by having visual experiences of shape and color (along with tactile, olfactory, gustatory) qualia. It is the status of these sense qualities that Churchland ignores. Such qualia are present in my experiences as well as in Mary’s, in mine when I look at a tomato, in hers when she examines the pictures on an MRI scan of the activity

<sup>21</sup> I do not know how Churchland decides what there is. When he writes against Nagel, he says, as we saw, that, at least for the claim that there are nonphysical (immaterial, in an older language) items (e.g., mental states), an *argument* would be needed (p. 200).

in my brain. In being aware of colors, shapes, textures, etc., I am aware of certain objects that possess those qualities.<sup>22</sup> When Mary is aware of whatever is on the screen or dial of some machine, because of her neuroscientific training, she is aware of the electrical–chemical activity in that area of the brain. What she sees on the screen are not qualities or properties of the brain. But Churchland seems to suggest that in ordinary cases of seeing *and* in Mary’s seeing, the object of the seeing is not the visual features, the visual shapes and motions. To say that the object of my seeing (in having the sensation of a red, round shape) is not a tomato or the sense qualia I ascribe to a tomato, but some action in the brain, strikes me as a most strange way of speaking. Forget about the issue that seems to worry Churchland – are those sense qualia nonphysical? – and turn to what Hardin calls for, to some phenomenological description. Even more to the point, just recognize that the seemings and appearances, the visual images and tactual feelings, are parts or features of the world we experience.

#### IV

The eighteenth-century concept of matter as force and power, an active as opposed to the older passive corpuscular concept, made it easier for philosophers to merge thought with brain action. That merging did not turn thought (mentality) into neural action. It may not be very clear what it means to say thought is a property of the brain, the concept of “property of” may need analysis. Spinoza, who was attacked for being a materialist, is the prime example of one who presented an ontology of multiple properties belonging to one subject (substance). The other route taken by eighteenth-century writers making matter itself dynamic and active also makes room for different kinds of properties belonging to one subject. Spinoza’s multiple properties, each reflecting the nature of the substance to which they belong, express the nature of the substance from the point of view and in terms of the kind of property each is. There is a parallelism between the properties in much the way that mental action and physical action on Leibniz’s account reflect each other and work in tandem.

Churchland speaks of neural analogs to the intrinsic and causal prop-

<sup>22</sup> I am trying to avoid the question of whether the sense qualia are qualities of objects. I am also trying to avoid the more difficult question of whether the object is something over and above the qualities I perceive. These are important questions but they are not, I think, germane to the issue raised by Churchland’s discussion.

erties of mental states. If such analogs can be found, he thinks that settles the question: mental states will then be physical states.<sup>23</sup> Since thought for Spinoza reflects everything that extension does, it is as if thought could be disposed of and done without. Even more striking, thought would turn out to *be* extension. If property X is the analog of property Y, property Y is really property X! You start with what you take to be two different states, one mental with intrinsic and causal features, the other neural, presumably with its own intrinsic and causal properties. Suddenly, when it is discovered that the neural states are the analogs in all respects of the mental states, it turns out that we did not after all have two different states. A conjuror's trick?

Churchland may not have intended to say that under those conditions mental states disappear, only that we can learn all we need to know about mentality from the neural mechanisms: everything (under the best of conditions) except the experiences of seeing, hearing, feeling, thinking, reasoning. Churchland has the neuroscientist, Mary, seeing, but he offers no account of her visual experiences. He allows her to acquire information from her visual experiences, information about the subject's experience, an experience that also is not analyzed.

I do not want to belabor the obvious, that visual experiences of seeing red roses are not the same as, though tightly correlated with and dependent on, neural processes. What I want to do now is to examine in a brief way the important question raised by Churchland and that worried many seventeenth- and eighteenth-century writers: how can physicality affect mental processes and conscious experiences?

<sup>23</sup> The *New York Times* article referred to in note 15 above identifies a thought as "a set of neurons firing," confusing the neural analog with the actual thought processes. In that article, Dr. Howard Fields, a neuroscientist at the University of California at San Francisco, says "We are misled by dualism or the idea that mind and body are separate." The suggestion seems to be that "separate" means "distinct and unrelated." Mind and body can be separate, even distinct, but closely related, as Descartes insisted. The *New York Times* science section for January 5, 1999, carries a heading for an article: "Using Magnets on Corners of the Mind," but the first sentence of the article speaks of "surgical instruments inserted in the brain." No mention of mind in the article.