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## Four Rejoinders: A Dialogue in Continuation

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Defenses of realist reductionism may involve *petitio principii* by a tacit and inadvertent reintroduction of naïve realism through continued supposition of stimulus and sensory fields' conflation. The legitimate meaningfulness of identity statements involving scientific discoveries is examined, as are their illicit or gratuitous expressions. While experimental psychological data has a role to play in refutation of direct realism, we should not underestimate the ingenuity of its proponents' extenuations (epicycles), hence the need for emphasizing the *logic* of perceptual processes for conclusive refutation of philosophic realism. A further instance of Paul Churchland's misinterpretation of psychophysical correspondence as intertheoretic identification is given, concerning Edwin Land's retinex theory of color vision.

### *Pace Hauser*

From the fact that the experiencing is in the head, nothing follows about the nature, location — or even the existence — of the experiencing's presumed object. It does not follow that direct realism "cannot possibly be true" (Smythies, 1989, p. 98); much less that "the experienced world is wholly locked up within one's brain . . ." (Hauser, 2002, p. 225)

It follows from the non-retrogression ("back" to distal stimuli) of proximal stimuli at the boundaries of our bodies that what we experience in our sensory field cannot possibly be that distal stimulus; yet just this fictitious means of perception ("back") must be what is posited by direct realism (or at least some unexplained equivalent to such sensory projection) in order to give us "immediate" perception of "stimuli" (objective qualia) outside the CNS. One

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I wish to thank my learned commentators for their kind interest and effort expended upon my elementary observations and deductions: Drs. Larry Hauser, James Kalat, J.J.C. Smart, and John Smythies. Thank you Stephen Harrison for your *Mind/Body Problem* — we look forward to its forthcoming republication as *Unconscionable Consciousness*, and indeed its inclusive trilogy. Requests for reprints should be sent to Mark Crooks, P.O. Box 745, East Lansing, Michigan 48826. Email: crooksma@msu.edu or crooksma@hotmail.com

cannot separate these two points: if there are (unexplained) perceptual feelers seeing “real” colors upon distal surfaces then sense modes or their contents have been inexplicably projected. Realism thus entails *physical and physiological* impossibilities proscribed by the scientific account of perception.<sup>1</sup> That is a different question concerning the “nature, location, even existence” of objects independent of our perception of them; that is properly an epistemological not psychological enquiry. Nevertheless, if one’s philosophy of mind entails a mysterious exteriorized perception in the stimulus field whose mechanism is unknown to accepted neurophysiology, this might seem an acknowledged abandonment of modern physics and neuroscience.

We should then put a question mark to Hauser’s contention that, given sensory processing in the brain, “nothing [logically or empirically] follows about the nature, location — or even the existence” of its material cause. *One thing does* follow inexorably: as the (generated) sensory field must be localized *behind and within* the boundaries of physical body whereupon proximal stimuli impinge, it must be discontinuous with the stimulus field outside those boundaries. It is not then physically possible for the two fields to be numerically identical, as direct realism claims. This is the one possibility that is definitively negated by that localization of the sensory field within the CNS.<sup>2</sup>

How . . . does the direct realist construe perception to be *direct*? What the direct realist denies is not intervening media of *transmission* between the distal object and visual experience thereof. What she denies (at the very least) is any intervening medium of *pictorial representation* — a “veil of images” — such that it is these images that are really experienced and *directly* “seen” (in the case of visual perception) . . . (Hauser, 2002, pp. 225–226)

This passage is exemplary of direct realist argumentation regarding perception. Whether it is denied that there is a “veil of images” (vale of tears?) blanketing our direct perception of physicalities or it is averred that we are “aware” of distal stimuli and not processes in the CNS, nothing is said of a *positive* nature of such a perceptual awareness, i.e., what its physics and physiology consist in. Yet it is a non sequitur to argue that, because our “awareness” of material objects involves “neural machinery” only to the extent that it facilitates our perception of those objects, therefore we are *directly aware* of

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<sup>1</sup>If Hauser is saying it is *logically* possible that our experiential world is identical with the physical world, this seems an odd way out for a reductionist philosophy that prides itself upon coherence with empirical science. There are also logical, though not empirical, possibilities that properly should be canvassed alongside that supposition, as that the cow *really* jumps over the moon and that the dish runs off with the spoon in alternative universes.

<sup>2</sup>Hauser’s argument from realist literature seems to be, “If nothing is precluded by that localization of sensory field in the brain, then anything is possible — including strict identity of stimulus and sensory fields.”

those materialities in the stimulus field. Besides, Smythies's distinction of *sensing* and *perceiving* (e.g., 1965) is not susceptible to realists' criticism in that his construct affirms that perception is "of" externality, only that it is not "direct" in the sense of unmediated (as is implied by direct realism).

Hauser, following realist writings as Armstrong's, affirms *verbally* such intervening variables of perception as proximal stimuli; but the antecedent they affirm with words is belied by their rejection of its undeniable consequent. For if one concedes that there is physical contact between the external world and ourselves only via the interface of impinging proximal stimuli at the boundaries of our bodies, then one has granted implicitly that the external world and our experiential world are mutually exclusive entities, because of their discontinuity (though coherent correspondence of the two is not logically ruled out but is indeed empirically instantiated by the process of neural encoding).<sup>3</sup> Proximal stimuli in the context of exteroception is unidirectional: it does not leave the distal stimulus to reach us and then via return-path enable us to see back to its origination.<sup>4</sup> The CNS (PNS) is an energy-sink whose sensory receptors draw in, but never project out, the physical energies at its sensorial periphery (cf. Smythies, 1954).

It would seem then that verbal affirmation of the mediate nature of perception does not add up to a positive account of this *direct* or *immediate* perception that grants us unconditionally objective observation of physicalities within the stimulus field. Therefore I ask again (and again), What are the physics and physiology of this realist perceptual mechanism.

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<sup>3</sup>It is patent that this affirmation in words with denial of empirical consequent is sincere; it is most probably generated by an introjection of naïve phenomenology into an intellectual understanding of sensory psychology, in that as it is understood that proximal stimuli traverses the distance between observer and observed, it is supposed we are enabled thereby to "see into the distance," "back" to the originating source, as we certainly appear to do in everyday phenomenology. But of course the proximal stimulus comes to us, sense modes' "projections" do not go out to meet distal stimuli; and so we are properly obliged to explain that discrepancy between those appearances and what science tells us must be the case, rather than rationalize naïve phenomenology at any scientific cost, let alone prestidigitate the semblance of their harmony as with direct realism.

<sup>4</sup>If this were the case then we should effortlessly see billions of light-years away when we casually glance up at stars on a clear night. If this sounds to be caricature, note that it is a precise analogue to the argument made by Armstrong (1968, 1969) regarding the localization of "real" colors on distal surfaces rather than with the light distribution qua optic array — leaving aside color's actual localization in occipital lobe. There is no difference in principle whether the object is two inches from our eyes or two billion light-years away: if we see the alleged real colors or brightness of magazine covers or starlight where their reflectance or radiation originates, then vision has left the CNS. It may seem caricature to bring in examples from astronomical perception because the distances are so much greater, but again, there is no distinction in kind between these illustrations: such sensory projection is impossible no matter how far outside the CNS it is said to extend.

*Classic representationalism*, as I'll style it, proposes to give perception a three-stage analysis in terms of

1. distal stimulus, objective reflection or radiation, and optical-nervous transduction and transmission (to take the case of seeing);
2. *direct-experiencing* of something *besides* the distal object, a "sense-datum" or "percept";
3. inference to the existence and properties of the distal object from the direct-experienced evidence.<sup>5]</sup>

Crooks, like Smythies, endorses this classic representationalist picture over against direct realism; and even, in the end, it seems, against materialism. (Hauser, 2002, p. 226)

I would like to attempt a solution to this anti-thesis against representative theory that historically had much to do with its putative debunking. The charge is made that with certain philosophies of mind and perception, notably representative and sense-datum theories, there are sensorial "givens" within the mind (or CNS) and that we can get beyond this "veil of images" only by means of an extraordinary inference to what lies beyond that canvass of representation.<sup>6</sup> Such a presumed inference violates our intuitive sense (that we never forsooth engage in such) and our aesthetic sense of decency (why would I need an inference when I can see with mine own eyes?). I maintain *there never is on our part any such inference made because we do not (ordinarily) conceive of the sensory field out-there to be the sensory field as such; rather it is conceived to be the "real world" (stimulus field) and hence no such inference would even be suggested to our everyday phenomenological attitude.*<sup>7</sup> In

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<sup>5</sup>This assumption that there is an "inference" beyond sense-data to an external world seems to confuse two types of inference: an *epistemological* one made by early representative and sense-datum theorists as Locke — putatively; see below — and Berkeley or Broad and Moore, in contradistinction to a *perceptual* one — à la Helmholtz's "unconscious inferences" — made in our everyday perceiving. Needless to say, if only a handful of sentient beings (philosophers) have actually made such inferences for their philosophical programme then it is doubtful that cognitive activities of this sort, assuring us via inference of reality's independent existence, accompany our normal perceptual activities and to ascribe such a notion to representative theory is caricature. (See Firth, 1949, on the "discursive inference theory").

<sup>6</sup>It must be admitted that philosophers as Moore and Broad fell into this same misassumption and accordingly battled a pseudo-problem and thereby furnished their philosophical competition grist for its mill.

<sup>7</sup>This is really just another way of stating, on my part, Smythies's (e.g., 1994a) concept of the *set of veridical perceiving* as over against an *introspective sensing*. I believe this satisfactorily resolves the "sense-datum" problematic enunciated by Locke (1689/1975, Bk. II, §§ 8–10): "The Ideas [of perception] we receive by sensation, are often in grown people altered by the judgment, without our taking notice of it. When we set before our eyes a round globe, of any uniform color . . . 'tis certain, that the Idea thereby imprinted in our mind, is of a flat circle variously shadowed, with several degrees of light and brightness coming to our eyes. But we having by use been accustomed to perceive, what kind of appearance convex bodies are wont to make in us; what alterations are made in the reflections of light, by the difference of the sensible figures of bodies, the judgment presently, by an habitual custom, *alters the appearances*

other words, to maintain that we would be obliged to make inferences as to independent realities beyond the (phenomenologically) real world is to suppose that we think (or are consciously aware) of that world out-there as being anything but *the* real world (which is intellectualized as “material reality” etc.), and emphatically we do not do this.<sup>8</sup> Only if we thought that that *reality out there were illusory* (an oxymoron) would we rack our brains to get behind those appearances. As there is no such inference ever made (except perhaps by a handful of eccentric philosophers), there is thus no explanatory superfluity in representative theory, any more so than with direct realism’s immediate perception said to give us unmediated apprehension of physical reality.<sup>9</sup> But whereas direct realism is incoherent with science, representative

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*into their causes* [emphasis added]; so that from that, which truly is variety of shadow or color, collecting the figure, it makes it pass for a mark of figure, and frames to itself the perception of a convex figure, and an uniform color; when the Idea we receive from thence, is only a plane variously colored . . .” (p. 145). This passage has an astonishingly modern ring to it, and if the term “Idea” — plus “judgment” — were replaced by “percept” it might well fit coherently into a text of sensory psychology. It is precisely this concept formulated by Locke, i.e., phenomenal qualities exhibiting perceptual constancies, which is vehemently rejected by extant direct realism! Should anyone doubt the empirical reality — as opposed to empiricistic vs. nativistic interpretation of that phenomenon — of Locke’s “perceptual inferences,” that one should examine psychophysical experiments cited by Gregory (1970) on the resolution of perceptual ambiguities into “object-hypotheses.” Indeed, Gregory’s concept may well be Locke’s, mediated by Helmholtz. We see again that realist philosophy is opposed to scientific psychology, because the modern concept — as such — of *percept*, as devolved from Locke and developed by Helmholtz, Gestaltists, et al., is used unproblematically in that science. The habitual, unconscious “judgment” of which Locke writes is perceptual ordering involving “constancy mechanisms (for shape, size, color, etc.) that make our experience correspond more closely to the objective state of affairs (the distal stimulus) than to the conditions at the sensory surfaces (proximal stimulus)” [Dretske, 1995, pp. 652–653]. It would seem that modern realist philosophy has condemned this notion of “perceptual inference” because it has not properly understood its meaning, which even (or especially) Locke appears to have comprehended fully. Whereas sense-datum theorists of the early twentieth-century appear to have misinterpreted Locke to mean we make an *epistemological* inference from sensory “givens” to an independent material object through the medium of “sense-data” (see Firth, 1949), Locke, at least in this passage, unmistakably references a habitual “inference” of *psychological* perceptual ordering. Accordingly rejection of representative theory seems based upon a caricature of what “perceptual inference” means. Locke’s “altering of appearances into their causes” means simply perception that makes “our experience correspond more closely to the objective state of affairs,” not an introspective analysis common to the set assumed in a psychophysical experiment that would supposedly afford us knowledge of the “real object” behind phenomenal appearances.

<sup>8</sup>In that case we would be cognizant that naïve realism were “fooling” us, when we are already and always oblivious to its — Cartesian demonic? — tricks that so benefit our negotiation of the physical world.

<sup>9</sup>If sophisticated philosophers, physicists, and neurologists do not make that extrapolation, when they of all persons would have the requisite knowledge to understand its necessity, *a fortiori* would the common understanding not make such an inferential leap. But this should indicate that its presumption was caricature or at least misunderstanding from the start. Cf. Ryle (1949, pp. 222–234) for a particularly pronounced and misleading travesty of this notion of perceptual inference, by means of his linguistic analysis.

theory is not and so this argument from parsimony (or whatever philosophers' denial of this presumed "extrapolative inference" is supposed to amount to) fails to achieve its end: representative theory no more needs that gratuitous inference to reality from sensory givens than does direct realism, and the overall balance would then be in favor of representative theory, perhaps favoring even an antiquated sense-datum theory over realism (if anyone cared to resuscitate it).

As naïve dualism has it, when I visually experience something purple and round before my eyes after the photo flash — though there's nothing "out there" I'm *seeing*, there really is something I'm *visually experiencing* (to put it carefully); something really purple, moreover, and really round; a *percept* . . . . Where could this percept be? (Hauser, 2002, p. 226)

I believe statements as this exhibit an oversight (not unique to Hauser) as to the nature and very existence of "phenomenology." One finds the assumption with Smart (1959), Armstrong (1968), Dennett (1991) et al., that if only afterimages, misperceptions, and non-veridical imagery in general might be disposed of by various methods of philosophical argumentation, the problematic existence that "subjective sensory phenomena" pose to the reductionist *Weltanschauung* will have been eliminated satisfactorily. The implicit presupposition then is that these "eccentric little corners of the universe" as phi-phenomena and illusory data are all that need liquidation; once that is accomplished the physicalist monist paradigm is in the clear. I suggest this is a complete misconception, as another of its presuppositions is that these sensory eccentricities are experienced against the contents of our veridical sensory fields: *but these sensory fields are mistaken by direct realist philosophy to be the stimulus field, in other words to be not (veridical) phenomenology at all but to constitute an exteriorized immediate perception of objective qualia and public observables outside the CNS.* Thus it is not just misperceptions etc., whose localization in a material universe is in question, it is the totality of phenomenology, veridical and otherwise; accordingly the reductionist programme has much more on its hands than the disposal of a few lowly and hermetically sequestered afterimages.

But no sense-mode *has* to leave the CNS. I can see out-there because light comes *in* from out-there. We can have our science and really *see* into physical space too. And if the reply is that this isn't *direct* seeing . . . for this to follow just from the *basic fact* that "*all perception must be transpiring within the CNS,*" directness must be understood in something like the absolute sense (excluding even media of transmission) limned above. (Hauser, 2002, p. 227)

It is not clear how, when light comes "in," we consequently "see into" physical space. The former process is an (transduced) ingress of proximal stimuli

into the CNS, the latter apparently an egress of vision from it.<sup>10</sup> These are neither empirically nor logically equivalent, though verbally they might appear tantamount *prima facie*.<sup>11</sup>

But when I “see” something that’s not there, like an afterimage, what then? “Surely you see something!” the representationalist says . . . . The direct realist may here reply, “What part of ‘not there’ don’t you understand?” You’re “seeing” somehow — roughly the same *how* as if you *were* seeing a purple spot — but not something. (Hauser, 2002, p. 227)

We note that in Hauser’s expression of this assumption (shared by Smart, Armstrong, Dennett et al.) that there is an implicitly presupposed recognition of those sensory phantasms construed as *privations* of the veridical phenomenology to which they are contrasted. That is, the very meaning of non-veridical perception obtains from its juxtaposition to its non-privative state in normal perception (e.g., “looks purple” vs. “really is purple”). What this signifies for that cited direct realist argument is that there is an unspoken but obvious admission that a perceptually privative “purple-seeming” is understood only against a backdrop of veridical perception of purple “really out there.”<sup>12</sup> Which brings us right back to the starting block: what is the ontological nature of these (implicitly or explicitly) posited objective color qualia, how is it that we are able to view them outside our nervous systems, etc. For Hauser et al. do not revoke the ontological reality of “real” colors and other sensory qualities, nominally independently existent within the stimulus field.<sup>13</sup> Veridical phenomenology is necessarily presupposed even in their very attempts to deny existence to its privational manifestations and this points up that veridical phenomenology itself must, in all consistency, be denied existence if its privations are so treated else realists are tacitly affirm-

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<sup>10</sup>This posited egress is similar, at least in expression, to Plato’s archaic analysis of perception in *Timaeus*.

<sup>11</sup>See a parallel expression of this in Armstrong (1968, p. 237): “The field of view is that portion of physical space over which [and into?] the person’s seeing eye is able to range at that time.” Or p. 295: “If we take visual perceptions . . . we can say that they are perceptions of objects located in physical space: in particular, the physical space in front of our [visible or physical?] body.” This kind of ambiguity affords much scope for the illicit presumption or suggestion of a verbally implied yet unexplained perception *within* the stimulus field.

<sup>12</sup>Cf. Armstrong, 1968, pp. 266–267: “The notion of perceptual illusion is deeply rooted in the notion of capacity for veridical perception . . . . Only against the background of the assumption that certain perceptions are veridical, can we identify particular cases as cases of perceptual illusion.”

<sup>13</sup>Realist reductionists not only do not deny their real existence, these objective qualia “out there” are required for their argument from “known” intertheoretic identities to their projected mind–brain identification.

ing on the one hand what they are denying with the other.<sup>14</sup> This conclusion is reinforced when we realize that veridical and non-veridical forms of perception have a common neural substrate. Regarding Hauser's argument in particular, to deny ontological reality to a purple afterimage by oblique reference to the ontological reality of "real" purple seems to engage in *petitio principii*, as what is in question here is whether there is in fact any differential localization (hence ontological status) of veridical and non-veridical phenomenology.<sup>15</sup>

Hauser quotes Smythies:

If you gaze at the little square again, you may be naïvely convinced that you are confronted with a small entity at the center of your visual field, but actually you are not, for your visual sensation of a square cannot be the physical square . . . nor is the square in the brain, except in the form of coded information in the nerve net. Thus the little square has literally nowhere to be. (Smythies, 1989, p. 87) [Hauser, 2002, p. 229]

Smythies (1994a) argues that mental contents are not localizable in brain because their respective parameters are ontologically incommensurate (cf. Leibniz's Identity of Indiscernibles). For purposes of my own argument I have presumed to the contrary; I have so presumed because I wish to grant to reductionist-minded direct realists the assumption that percepts are numerically identical with brain states, thereby to show that even given this assumption, claims of intertheoretic identification *inter alia* are incoherent with science of perception because they confound stimulus and sensory fields as "identical."

Incidentally, Hauser seems to confound two distinct strands in Smythies's arguments: the critique of direct realism by reference to sensory psychology and the Broad-Smythies mind-brain hypothesis (Smythies, 1989), which are

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<sup>14</sup>Realists have hitherto got away with such a logical inconsistency because they do not consider the contents of their "direct perception" to be mere "subjective" phenomenology, but rather their immediate perception is situated within the stimulus field, that is, the contents of "objective" veridical perception are the physical objects and qualia themselves, supposedly not localized within a sensory field itself within CNS.

<sup>15</sup>Cf. Smart's comments (2002, p. 242): "If one is depending on a materialist theory of mind then one must deny the existence of sense data. If there was a Union Jack sense datum then it would be something in the brain, and it is implausible that there are Union Jack red, white, and blue entities in our brains." There is here an implicit contrast between objective color qualia in the stimulus field ("upon" the British flag qua stimulus), which are perceptually veridical, over against "illusory" non-veridical phenomenology "in the head." But what is in question is whether the veridical and non-veridical phenomenology *are* thus localized in two different fields: we maintain that they are both aspects of the sensory field whereas Smart, Hauser et al. say veridical phenomenology is the stimulus field, counterposed to afterimages, misperceptions etc. *within the head of the sensorial body-image*. Accordingly one is required to demonstrate how these externalized color qualia and publicly observable Old Glories are directly perceived outside the CNS, by what perceptual mode of effluvial emanation or sensory projection, etc., otherwise this is *petitio principii*.



logically dissociable. My own criticisms of direct realism, insofar as they reference Smythies's writings, utilize only those passages of his that are derived from accepted psychology and not his more conjectural efforts.<sup>16</sup> Anyone conversant with that psychology and its philosophical implications could make those same or similar criticisms as Smythies has (as in fact Beloff, Brain, and Köhler have). I have chosen Smythies's simply because they tend to be cogent in their expression and because ubiquitous philosophical naïve realism leaves few authors to choose from. Accordingly, as Hauser has directed much of his commentary to a critique of that Broad–Smythies hypothesis, I believe that the arguments given in my paper from sensory psychology against direct realism are left intact by his criticism, even should his arguments (ideally) be confutative of Smythies's physicalist dualism; perhaps his commentary would appear a fallacy of relevance for that same reason. Again, I have for my argument in fact denied Smythies's position that percepts and sensory fields cannot be localized in brain, so it is not clear to me why it should be implied my own position would stand or fall with his. That implication in this context appears a fallacy of irrelevant conclusion because I have not denied that sensations (percepts) are “nothing above and beyond brain states” (Smart, 1959). My arguments rest upon the axiom that stimulus and sensory fields are spatiotemporally disjunct, not that percepts are not numerically identical with brain states. Thus when Hauser directs his criticism against a dualist thesis that would deny such identification, this would not affect my own argument at all, seemingly.

Yes, Mark Crooks, there is no little square; there is no phenomenal field around the next transdimensional bend . . . (Hauser, 2002, p. 232)

The “little square” referenced cannot be the one cited in my paper (2002) as that was intended to represent a physical object and this is the one permissible existent in reductionist ontology; Hauser must then be referring to Smythies's little square that was “literally nowhere.” That being so, this is puzzling because the implication is that Hauser is denying veridical phenomenology (“little square *out there*”) along the lines proposed by Dennett (1991) while yet concurrently defending direct realism as espoused by Smart, Armstrong et al. *Their* realism does not deny veridical “phenomenology” but affirms its existence as public observables and objective qualia.<sup>17</sup> There seems then to be in his commentary a broad defense by Hauser of realism with a

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<sup>16</sup>That above passage from Smythies quoted by Hauser seems not speculative or expressive of representative theory at all but straightforward neuroscientific observation.

<sup>17</sup>Quotations because it is not even considered by direct realists to *be* sensory phenomena, but rather physical objects and properties immediately perceived.

concurrent denying of its more specific implications (e.g., denial of *reality* of veridical visual contents of perception), at least as these are routinely expounded in the realist literature. Because these realists share a reductionist sympathy with Dennett and his co-thinkers does not mean they all necessarily club together on this issue of realistic perception.

### *Pace Kalat*

Phenomenal properties are in a perceiver, not in an object . . . . [R]edness, warmth, and pitch are properties of how energies interact with our nervous systems. (Kalat, 2002, pp. 233–234)

This is an important point and it should be reemphasized that phenomenal properties (percepts) are not only a function of dynamic interaction between proximal stimuli and a material observer's sense modes and brain but that *localization of that interaction* (qua sensory fields) is within that observer and not within the stimulus field. Now it is easy to accede to this caveat in words yet indeed the entire construct may well escape us conceptually if those sensory and stimulus fields are not kept disjunct in the mind's eye. Thus those words of Kalat's seem to be routinely interpreted (mundanely or by direct realists) as meaning that perception (sensory reception and ordering) is transpiring within the visible and tactual body (*body-image*) while implicitly there is the concomitant presumption that the visual field is physical space and its visible ("material") objects are viewed directly by us and are publicly observable to ourselves and others, etc. It is too easy to fall into these misconceptions even given such a recognition that perception consists of interaction between subject and object; only by realization that the visual field (phenomenally) out-there itself is really in-here (within CNS) does there come an intellectual transcending of native realism (though we habitually continue as native realists in our mundane thinking, perceiving and action).<sup>18</sup>

The important issue is whether the concept of objective qualia has been just unfortunate terminology and a bad example, or whether discarding the concept seriously harms the position of mind–brain identity. (Kalat, 2002, p. 233)

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<sup>18</sup>See Smythies (1994b) on Francis Crick's (1994) mischaracterization of "visual field." What is very curious is that while Smythies's analysis seems unanswerable, yet Crick explicitly repudiates naïve realism in that same text (p. 104): "[W]hat we see appears to be located outside us, although the neurons that do the seeing are inside the head . . . . The 'world' is outside their body yet, in another sense (what they know of it), it is entirely within their head," etc. Cf. Dennett (1991, p. 52) for a comparable statement. What is intriguing is that juxtaposed with these commendable abjurations are lapses right back into an intellectualized naïve realism. What this must show is the utter resilience of naïve phenomenology in forcing even those familiar with its intellectual overthrow, into backsliding forthwith to its continuing rationalized expression.

Kalat seems to imply that identism is a sound working hypothesis for neuroscience while its counterpart in philosophical reductionism has led to some vagaries of conception. Smythies (for one) presumably would contest Kalat's further claim that "neuroscience research to date has been fully consistent with some version of mind-brain monism," but I wish here only to highlight the point that my critique of the Churchlands is solely for purpose of illustration of the systemic fault of naïve realism that runs throughout realist and (philosophical) reductionist literature of the last fifty years minimum. They exemplify that fault so well that we may afterward more clearly pick it out in Ryle (1949), Place (1956), Smart (1959), Armstrong (1968), Nagel (1974), Jackson (1977), Dennett (1991), Crick (1994) et al.<sup>19</sup> In this sense more is involved than mere confusion of terminology, it represents an utter and systematic confoundment of conceptuality whose misconception of the nature of perception is merely reflected within inappropriate usage of terms from psychology.

Thus the concept of objective qualia is more than bad example (qua confabulatory concept), it is a veritable tip of the iceberg of that confounding of stimulus and sensory fields. Objective qualia, common sense observables, publicly observable physical objects (POPOs), realists' presumption that body-image is physical body, that visual space is physical space, that we share sensory fields in "immediate perception" and so on attest to that deep-seated misunderstanding of the nature of percipience.<sup>20</sup> That profound confusion is apparently attenuated because the terms employed by reductionist philoso-

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<sup>19</sup>Cf. Putnam (1962, p. 178) on the standard view from philosophy of science. Under heading of "observation terms" he includes "red" and "touches"; these are explained, "The observation terms apply to what may be called publicly observable things [ostensibly distal stimuli qua publicly observable objects] and signify observable qualities [objective qualia] of those things, while the remaining terms correspond to the remaining unobservable qualities and things [unobservable objective qualia and "publicly unobservable" objects:]." What is taken for granted by both sides in such a debate over observables and unobservables is the unwarranted assumption that their public observation and observables engendered thereby are explanatorily unproblematic and that these have a coherent interpretation within accepted physics and physiology of perception. Cf. Nagel (1961, p. 81) on "the notorious unclarities that attach to the word 'observable.'" I am attempting to lend even greater notoriety to that omnipresent unclarity.

<sup>20</sup>The particularist terminology is immaterial, the parallel conceptual content is key. Thus Armstrong (1968, p. 45): "Ordinary physical objects have both visual and tactual properties, they are, for instance, both colored and solid." "In [my] solution of the [inverted spectral] problem it is assumed that red and green are objective properties of physical objects or physical surfaces [p. 258]." "A Color Realist is therefore one who holds that the color of a surface of an object, or the color of an object as a whole, exists independently of its being perceived [1969, p. 119]." Whether he would term these "objective qualia" is a secondary issue of nomenclature. In fact, Armstrong (1965) christens Churchland's objective quale as "sensible quality": the conceptual substance of both terms is indistinguishable as is made clear by the contexts of both their works.

phers are (more or less) the same as those used in science of perception, so that no (superficial) discrepancy is usually discerned and these oversights are thereby occluded by mere terminological “identity”; indeed the fundamental disparity of direct realism’s construct *in toto* with that of psychology’s becomes virtually unnoticeable if we attend only superficially to the words describing their conceptions. What I have attempted in my paper is to get beyond that facile verbal similarity and focus those fundamental, underlying *conceptual* disparities, so that in future we as interlocutors will not then be talking past each other by assuming the other is using “common” terms in an univocal sense.

Not only is it true that a perception of sound waves is inherently different from the sound waves themselves. Pitch and sound frequency do not even have an invariant one-to-one relationship. (Kalat, 2002, p. 234)

Christman (1971, p. 277) writes: “While we found loudness to be a function of both frequency and sound intensity, the experience of pitch appears to be somewhat more simple, with only slight dependence on intensity [amplitude] . . . . [F]or the middle frequencies of primary interest, pitch is to all intents and purposes a function of frequency.” Thus excluding “middle frequencies,” both experiential loudness and pitch have not only no invariant one-to-one relationship with amplitude and frequency, they are not, individually taken as psychological continua, even strictly correspondent with a singular dimension of sound waves as frequency and intensity may be interchanged (within limits) to produce the same auditory quality: *loudness and pitch may be functions of both frequency and intensity, not necessarily one or the other exclusively*. How this empirical observation is to be squared with the presumed intertheoretic identity (hence ontological equation) “pitch is frequency,” how many more epicycles are required for direct realism to account therefor, is anyone’s guess. (Cf. Smythies, 2002, on the utter implausibility of direct realism in face of psychophysical experimentation.)

The nature of qualia is uncertain, but we shall not find the answer in the external stimuli themselves. (Kalat, 2002, p. 237)

What then is my position on qualia? In a sense I agree with Smart, Dennett et al. in that I do not believe qualia really exist, at least not as they have been construed in reductionist philosophy down to the present, viz. in their bifurcated objective and subjective varieties or as somehow straddling both sides of that ontological fence (i.e., fictitious half-sensory and half-stimulus qualia). I agree with their conclusion but not their reasons for that conclusion, because my rationale for denying qualia’s existence is radically different from theirs: I say there is something ontologically corresponding to qualia,

and these are (non)veridical percepts.<sup>21</sup> Whereas they say these qualia do not have *any* (save “illusory”) existence, because otherwise their ontological presence would violate the tidiness of a physicalist scheme and its claim to universal comprehension (see Smart, 1959; Dennett, 1969), I affirm their existence but maintain these “qualia” have been systematically misidentified in extant philosophy of mind because of misunderstandings as to the nature of perception.<sup>22</sup>

Crooks . . . concludes that it is difficult or impossible to demonstrate that mind is identical with brain activity, because as a general principle we cannot demonstrate that any thing is identical with any other thing: “The kinds of ‘identifications’ obtained in science are not of things to things, but of theories to theories.” On this point I am puzzled, as it would appear that science routinely identifies thing with thing. (Kalat, 2002, p. 234)

The prime objection to the standard reductionist methodology is covered sufficiently in my paper, viz. that what are termed “objective qualia,” “publicly observable physical objects,” and “common sense observables” by realist reductionist philosophers have only fictitious existence and are misidentified percepts, expressions of misunderstanding of perception.<sup>23</sup> And if there are no such actual qualia or POPOs then the following succinct argument should be a neat summary of my paper’s implication for the nature of discovery or “identification”:

- (i) There are no objective qualia or POPOs.
- (ii) If there are no objective qualia or POPOs, then any ostensible intertheoretic identities between them and their “material natures as discovered by science” are impossible, as one term of such a prospective equation is ontologically non-existent.
- (iii) Yet there is scientific progress.

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<sup>21</sup>Publicly observable physical objects and common sense observables are no less existent, qua percepts, than objective and subjective qualia, qua percepts. Objective qualia seem to represent, in the philosophical literature, properties of POPOs, both being “reducible” to a given material substrate. But both of them and similar confusions are ultimately percepts, whether this is realized or not — because *science* is the ultimate arbiter of such questions pertaining to ontology and localization, not your or my arbitrary fiat.

<sup>22</sup>See my rejoinders to Smart, *infra*, on the distinction between the standard and radical readings of “illusion.”

<sup>23</sup>I should state I am perfectly cognizant that the Churchlands in particular most certainly did not *wittingly intend* with their postulated object-to-object reductions that spatiotemporally discontinuous objects, events, and processes would somehow conflate to the same existence, whether through scientific progress or other means. I am only saying that *in effect* that is exactly what is entailed — though it be physically impossible — by their intertheoretic identities that misidentify, in the final result, percepts with their objective causes.

- (iv) Ergo scientific progress cannot consist of object-to-object reductions (at least in the sense intended by reductionist philosophers).

We see that theoretical reduction must be taking place in the absence of ontological reduction (because there is indeed conceptual continuity in scientific progress), as this reduction has been hitherto defined and conceived; the two evidently are as dissociable as a percept and its material cause. If one concedes there are no objective qualia, it seems to follow necessarily that there is no ontological reductionism taken in that standard sense. Reductionists' *unintended* reductions (of discontinuous percepts and their causes) are physically impossible. Their *intended* reductions (of POPOs and objective qualia to their putative "material natures") are also impossible because there are no such existents as POPOs to be so reduced (i.e., sense/reference identities here become meaningless when either *sense* or *reference* does not really exist). I suggest that scientific progress must instead consist of something very much different from that concept of identity as signified in logic (sense/reference equations); that perhaps logical identity has not much to do with scientific discovery except *per accidens* having a common name upon which tenuous connection a theory of reductionism has been constructed.<sup>24</sup>

[I]t would appear that science routinely identifies thing with thing. For example, neuroscience research has demonstrated that the point of origin of a motor neuron's action potential (defined physiologically) is the same thing as the axon hillock (defined anatomically). If this is not an example of identifying one thing with another, perhaps Crooks has a more limited meaning of "thing" or "identify." (Kalat, 2002, p. 234)

Kalat's identity proposition has the merit that it is not a fallacy of equivocation, unlike (say) "lightning is an electrical discharge" — which (colloquially) expresses not an identity at all but rather psychophysical correspondence, viz. our visual percept of lightning is caused by an electrical discharge. Contrariwise there is legitimacy in maintenance of such an equation between localization of action potentials' initiations and axon hillocks. We should determine exactly where this legitimacy lies.

We might reformulate Kalat's statement instead as, "Neuroscience has *discovered* the physiological function (spike initiation) of axon hillocks." The term "identity" (*sameness*) now no longer obtains but have we then "cheated" or played mere word-games with the proper idiom and phraseology of "real" identification thereby? If we examine the history of discovery of that

<sup>24</sup>Smart (2000) makes clear how very recent this characterization of scientific discovery qua logical identity really is, in fact only several decades old — it may perhaps go back to the 1930s: see Feigl (1958, p. 390). It seems in the interim to have attained the status of an unquestioned and unquestionable philosopheme; why? What intrinsic or necessary connection is there between a logical criterion of identity and scientific "identifications"?

physiological function from neuroscience (e.g., Thompson, 1967, pp. 129–163), both statements seem justified in that context: so which should we choose? We certainly *may* derive a statement of identity from that history, but it seems more natural to simply pronounce that the physiological *function* (depolarization-trigger) of axon hillocks' *structure* has been “identified” or discovered through experimentation and hypothesis. Kalat's formulation is not at all merely tautologous but indeed expresses a meaningful and informative proposition (à la “Sam Clemens *was* Mark Twain”); but we suggest there are less artificial idioms for expression of such (empirical) truths. The prime *identification* involved in science would be *discovery*, not necessarily an *equation of definite descriptions*; this latter seems adventitious and programmatic in purpose.

This translation (in philosophy) of straightforward statements of scientific discoveries into more artificial (maybe even ad hoc) propositions expressing logical identity might be construed as an attempt by reductionist philosophers to establish an analogical basis to projected mind–brain reduction. *It would seem as though the entire sweep of scientific history were to be forced into a procrustean bed of identity statements to furnish precedent for an anticipated parallel reduction of mental states to brain states by means of analogous propositions.* Perhaps these *ex post facto* statements of identity are more discoveries of reductionist-minded logicians than of scientists themselves.<sup>25</sup>

### Pace Smart

To some extent Crooks's argument may be vitiated by an incorrect account of identity . . . . When you say truly “The cleverest boy in the class is the best footballer in the school” you are not identifying two persons. (There would be two if the identity statement were false.) You are still giving information to someone who knows who the cleverest boy is but who does not know who the best footballer is. (Let me refer to the definition of identity in first order logic.) [Smart, 2002, p. 243]

This example is presumably an analogy to the proposition “pitch is strictly identical with frequency” that Smart defends in his commentary. If so, it presupposes that the construct of pitch (in psychology) refers to the selfsame entity that is defined in physics as the dimension of frequency of mechanical radiant energy. But this is what is in question, for if pitch is within CNS of a material observer and its objective cause is outside that observer, they are spatiotemporally disjunct and hence cannot have the same ontological being. To assume otherwise, that pitch and frequency are different descriptions of one and the same thing (objective quale or POPO) would then seem *petitio principii*.

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<sup>25</sup>Query: Did anyone conceive of scientific discovery as a serial unfolding of identity statements, or bother to recast more natural expressions of that history, *before* identity theory came into vogue in mid-twentieth century?

Perhaps an overview of my method might help clear up any remaining questions on this score. In my paper (2002, pp. 195–197) I showed that the assumption of a publicly observable object (in the positivist sense) is implicitly incoherent with the nature of individual and collective perception. Further, an allied concept was shown to be equally unintelligible (pp. 200–205), viz. an objective quale said to be numerically identical with physical matter. From this was immediately inferred that there exists no “third term” or common referent that might act as a “bridge principle” between definite descriptions (e.g., “pitch” and “frequency”) said to have that common reference, viz. a (nonexistent) POPO or objective quale. In other words, to say that one (pre-scientific) description of an object (“folk theory of objective qualia”[?]) and a second description thereof (“scientific account of the material nature of objective qualia” [if such there be]) are accounts giving different descriptions of the same thing, does not make sense if their supposed common referent is in actuality nonexistent!

My next step was to employ a *reductio ad absurdum* to show that there are no other objects in question that might serve as that common referent. Thus if any ontologic or theoretic reductions are to be had in this new conceptual geometry, they must be between percepts and their objective causes, as these are the only things left standing for any prospective identifications (*two* terms, not three anymore). Can we show that percepts and their material causes are spatiotemporally continuous (Smart, 1959, cites this criterion of identity)? Of course not, one is within, the other without the CNS (pp. 205–206). Perhaps nonetheless their *descriptions*, if not localizations, might be held to be somehow equivalent so that they might be reducible in theory? This lead to the unintelligible conclusion that neuroscience has been (or shall be) explanatorily subsumed to physics of perception (e.g., acoustics) [see pp. 208–209]. In my Addendum I gave one further illustration along these lines: might there be some kind of ontologic reduction between the objective cause of percepts (e.g., visible radiation) and its taxonomic genus (electromagnetic spectrum)? This too is absolutely incoherent because visible radiation obviously cannot be spatiotemporally continuous with the class of all physical radiation; their “identity” is one of *class inclusion* or *identity of type*. Only the respective theories mathematically and conceptually describing these phenomena exhibit reduction, the reduced theory becoming a *limiting-case* of the more explanatorily comprehensive one, with the resultant *ontological unification* defining a physical taxonomy of their respective phenomena (here, visible light as a range of the electromagnetic spectrum).<sup>26</sup>

<sup>26</sup>I believe this account of scientific discovery is coherent in essentials with the “is” — copula of identity — of “theoretical identification” given in summary form by Putnam (1960, p. 169). Note the emphasis there is upon *conceptual* reduction, not spatiotemporal continuity involved in claims of “identification.”



Thus Smart's statement that I have given an incorrect account of the concept of identity may be itself question-begging, for this would presume that there *are* these POPOs and objective qualia that might serve as the common referent for (say) folk and scientific descriptions of the "same thing."<sup>27</sup> Again, that Smart, the Churchlands et al., *believe* they have one referent (POPOs, objective qualia) in mind when positing their intertheoretic identities, I do not question; only whether there *are* in fact any such existents that might serve as that common referent, and hence whether that concept of identity from logic is properly applicable here.

I am not clear about Crooks's use of the word "percept," which is not common in the recent philosophical literature and is not in my own philosophical vocabulary. Russell used it quite often, and it is used in a sense which is probably not Crooks's in Firth (1949, 1950). I am unclear whether his percepts are events in the brain with non-physical qualia or whether they are just events in the brain . . . (Smart, 2002, p. 241)

I use the term "percept" in the (fairly) strict sense in which it is used in psychology, and is not intended to reflect any arbitrary philosophical usage. The paradigm of this construct is a visual gestalt ("out there") with perceptual constancies of color, shape, and size.<sup>28</sup> This is a further misconception to clear up: my paper's purport was not to delineate a philosophical theory at all, indeed I have not even any particularly philosophical end in view (even

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<sup>27</sup>Determination of just what is *meant* by these intertheoretic identities seems far more problematic than hitherto supposed. What is necessary at present is to determine exactly what science has "identified" — whether objective qualia with their "material natures" or rather the discovery of material nature and its psychophysical correspondence to our sensory experience. No conceptual or adverbial contrivance as such will determine the question: "No linguistic investigation of the names in a statement of identity will suffice, ordinarily, to determine whether an identity holds or fails. [Statements of identity] . . . all depend for the substantiation upon inquiry into extra-linguistic matters of fact" (Quine, 1982, pp. 268–269). Thus enquiry into "extra-linguistic" physics and physiology of perception, as these implicate the objects of "public perception," would be the proper method of determining whether indeed objective qualia, etc., are really existent and what their ontological nature consists of — molecular stuff or misidentified percepts.

<sup>28</sup>"Percept" in this standard psychological sense may be seen in Crick, 1994; Firth, 1949, 1950; Honderich, 1995 (pp. 652–653); Köhler, 1940; Schilder, 1942; Smythies, 1956; Tibbetts, 1969; Vernon, 1962. Equivalent terms in psychology would include "sensation," (Gibson, 1966; Helmholtz, 1866/1966; Hochberg, 1978; Land, 1977), "object-hypothesis" (Gregory, 1970), and perhaps even Helmholtz's (1866/1966) "unconscious inferences." These all denote an essentially identical concept, viz. phenomenal sensory qualities that exhibit perceptual constancies, *not* neural processes as such. These latter are generally construed as the neural *substrate* for phenomenal, experiential qualities consequent upon stimulation of sense-modes. Thus Smythies, 1970, p. 114: "Even before this first behavioral reaction of the organism the sensory inflow from the stimulus must be received, coded, classified, compared, and interpreted by the brain (e.g. 'quite novel stimulus' . . . 'bark of dog far off' . . . 'cry of baby'). This activity must involve the entire cortex and the controlling structure would appear to be the mesencephalic RF [reticular formation]."

that of representative theory). Rather I am critiquing certain philosophical concepts (e.g., “objective vs. subjective qualia”) in light of any possible meaning that may be ascribed to them from psychology itself. My paper thus should not be construed as philosophical as such but as a critique of extant philosophy of mind from an Archimedean toehold within psychology. My usage of the term “percept” should be seen in light of my entire paper devoted to this end and thus not as idiosyncratic quirk. (Again, for purposes of my argument I assume that percepts are numerically identical with their “respective” brain states.)

A large part of Mark Crooks’s paper is concerned with criticism of the Churchlands . . . I shall leave the Churchlands to look after themselves and concentrate on the main issue of direct realism and Crooks’s criticisms of it. (Smart, 2002, p. 239)

The presumption that I have singled out the Churchlands in my paper somewhat misconstrues my prime motive therein, perhaps I did not make this clear enough there. My purport was not to pounce upon an idiosyncrasy of one or two philosophers but to expose a *systemic fault* of realism or reductionism of the past half-century or more, especially prevalent since Gilbert Ryle (1949). This fault is of course naive realism and the surprisingly manifold contexts in which it has found expression in arguments of physicalist monism. Paul Churchland’s perspective has been emphasized only because his expressions of that fault tend to be “louder” than others’ and hence may be used for a first approximation to recognition of that same oversight made by those others.<sup>29</sup>

I am unclear whether [Crooks’s] percepts are events in the brain with non-physical qualia or whether they are just events in the brain. (Smart, 2002, p. 241)

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<sup>29</sup>To say reductionists have “confounded the stimulus and sensory fields” is only another way of saying the physics and physiology of perception have been confused. Thus Dennett (1991, p. 454): “[W]hen [physicists] explain the way reflection and absorption [by distal stimuli] of electromagnetic radiation accounts for colors and color vision, they seem to neglect the very thing that matters most.” This might be a true statement if “physicists” explained “color vision,” i.e., physiology and phenomenology of perception, by means of “reflection and absorption” of proximal stimuli, i.e., physics of perception, but they do not, though Paul Churchland et al. indeed explain vision this way and Churchland’s work (1985) is cited in the bibliography of Dennett’s text. We see again the systemic fault of naïve realism in most if not all these reductionist philosophers’ writings. The epitome of this confoundment is perhaps due to Armstrong (1969) wherein conditions of optimal viewing qua immediate perception of distal stimuli’s surfaces *through an optical microscope* are said to grant an absolutely veridical “real color” — objective quale — of such public observables. But is not a microscope designed for the “subjective” human eye? Apparently not: “The real color of a surface must therefore be a function of what goes on at the surface. It is only indirectly a function of the stimulation that actually enters the eye [Armstrong, 1969, p.125].” The reason for such necessity of localization of “real” color at distal surfaces is left unstated; indeed its localization is earlier given as a matter of *definition* (pp. 119–120). Further, that cited “color as an indirect function of

For my purpose of showing an incoherence of direct realism with the science of perception I assume that percepts are numerically identical with brain states, which is the standard assumption in (radical reading of) materialist neuroscience (cf. Kalat, 2002). This I did toward the end of demonstrating that even given that physicalist premise, the analogy from nominal intertheoretic identities culled from physical sciences still has no applicability to the case of percepts (“objective qualia”), as these are localized in brain while their alleged “material nature” qua proximal and distal stimuli are spatiotemporally displaced outside that brain. Whether percepts are indeed brain states or non-physical stuff are questions I am not competent to answer, but the only thing I require for my argument is to posit their (unquestionable) disjunction from their objective causation; this suffices to overthrow Churchland et al.’s claims of reduction.

The contention that perception is coming to believe by means of the senses is topic neutral. It does not imply the scientific story but is compatible with it. “Perception is coming to believe by means of the senses” provides an analysis of the ordinary and topic neutral concept. The scientific story provides an explanation of the coming to believe. So direct realism is compatible with the scientific story. (Smart, 2002, p. 240)

It should be emphasized here that the “ordinary and topic neutral concept” of perception is shot through with naive realism (Beloff, 1964, *passim*; Smythies, 1956, pp. 102–105), and this manifests in the folk theory of perception that Smart wishes to make compatible with its scientific replacement. Accordingly a conflation of those two stories, to be as smooth a reduction as Smart and his colleagues are hoping for, would presumably incorporate the naive realism of that folk or pre-scientific story into the scientific construct. I suggest this confusion has been so accomplished at present but its results emerge predominantly in (realist) philosophy of perception and mind rather than in psychology.<sup>30</sup> Thus in direct realism the *body-image* (somaesthetic field) is unquestioningly assumed to be the observer’s physical body and visual and tactual fields outside that phenomenal body constitute physical space. Smart’s (1959) “brain processes” would then be within that sensorial head (interpreted as physical head), while yet that somatic percept of head, in the scientific account, resides actually within somatosensory cortex. “Perception” in Armstrong’s (1968) paradigm is “immediate” (non-inferential

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stimulation at the eye” seems an inversion of psychology of perception, as it is the optic array, not distal reflectance, that is transduced and encoded within the visual system and whose upshot is phenomenal coloration. And even the optic array is outside the CNS and hence cannot be numerically identical with color percepts.

<sup>30</sup>This is of course not to suggest that every practicing psychologist does not make such an oversight and that all philosophers of mind do so. What we mean rather is that *in principle* sensory psychology as such does not make this oversight while direct realism as such does.

and “direct,” i.e., functionally externalized to CNS).<sup>31</sup> Realists’ perception consists of “neural registration” within the head of the body-image, a series of brain processes over against an unexplained exteriorized percipience that somehow leaves that “physical” body and roves within the stimulus field, whether tactually, visually, or by audition. On every point cited this picture of perception is incommensurate with known facts as to the nature of percipience. Thus I would respectfully question Smart’s contention that direct realism is compatible with science of perception. One must be sufficiently careful as to the implicit meanings of the terms that direct realists employ and the contexts of their expression if one is to recognize that incompatibility, otherwise their mere usage of those standard terms from psychology will lull one into an erroneous presumption that the concepts those terms signify are being intended in the standard senses, when this is not the case.<sup>32</sup>

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<sup>31</sup>Armstrong’s (1961, 1968) “immediate perception,” in identical term and concept, is unmistakably derived from Berkeley, in whose philosophy Armstrong specializes. Berkeley’s construct was designed to give us indubitable awareness of “objects of sense” so as to forestall skepticism, and *Armstrong takes over this concept of immediate perception and puts it to the same purpose, but this time around into a radically empiricist and reductionist framework*, rather than in its original use in a seemingly antithetical radically idealistic context. Berkeley’s notion antedates modern sensory psychology by centuries and accordingly it is unlikely that such a philosophical concept of perception, derived from his necessarily inadequate knowledge, is coherent with science. What seems most outlandish about Armstrong’s revivification and transposition of this immediate perception is that while Berkeley used it to “prove” (via definition; see Hamlyn, 1961, pp. 109–110) that we do not and cannot apprehend a material world independent of our perception, Armstrong (1968, pp. 189–193) uses that same construct to prove (by definition: see Smythies, 1965, pp. 246–247) that we have incorrigible (non-inferential) knowledge about an independently existent physical world! It is indubitably curious that Armstrong must do battle with physiological solipsism in the armaments borrowed from the epitome of a subjectivistic, even solipsistic idealism, and this in the name of common-sense realism. Armstrong nevertheless will not begrudge incorrigible judgments to introspection (1968, pp. 104–107) as this might impugn the reductionist thesis; he thus radically inverts the traditional dualism devolved from Descartes that it is introspection, not perception, which permits of infallibility. Armstrong then seems to have a penchant for turning the doctrines of august philosophers on their heads for support of conclusions antithetical to *their* systems, while yet favorable to his own.

<sup>32</sup>A case in point is Armstrong’s (1968, pp. 209–210) constructs of “perception” and “illusion”: “Veridical perception is the acquiring of true beliefs, sensory illusion the acquiring of false beliefs . . . when perception is spoken of in this work as the acquiring of information, it must be clearly understood that no distinction at all is intended between the [sensory] information and the [cognitive] beliefs to which it gives rise. Information and beliefs are identical . . . . If perception is the acquiring of beliefs or information then clearly it must involve the possession of concepts.” This reasoning paves the way for identifying most if not all sensuous contents of mind with “abstract” concepts, themselves said to be numerically identical with “invisible” or non-phenomenological brain states, over against the contents of an immediately perceived stimulus field in the form of POPOs and objective qualia, these latter as known by modern science to be nothing other than material properties. The illicit transitive equations: percepts (subjective qualia) = concepts = brain states; percepts (objective qualia) = properties of POPOs = material structures and dispositions, no different from Churchland’s argument — perhaps its origin — though one be central-state materialism and

[Crooks] quotes Wittgenstein's *Tractatus* at the beginning of his article. However, this depends on the notions in the *Tractatus* of atomic facts and logically proper names which Wittgenstein himself came to reject . . . (Smart, 2002, p. 243)

My epigraph from Wittgenstein and its "elucidation" in my favor were intended solely as ironic expedients and were nowise to be construed as an interpretation of the historical thinker, rather only to highlight the great influence he has had on subsequent reductionists from at least Ryle to Dennett and beyond. Thus I imposed a somewhat facetious interpretation upon the letter of his wording merely to emphasize that irony.

To have a mental image is to put ourselves (in fact our brains) through motions similar to those of actually seeing or hearing. Neither sense data nor images are to be thought of as ghostly picture postcards or as analogous to postcards in the brain. It is true that phenomenology may tempt us to belief in qualia. This phenomenology, according to me, is illusory . . . (Smart, 2002, p. 242)

Much light may be thrown on the topic of reductionist assumptions by analysis of this statement that "phenomenology is illusory." This means, for example with afterimages (Smart, 1959), not only that they are not veridical *but that there is nothing really manifest in the visual field with such imagery*. This contention must seem incredible to anyone disinterested in mind-brain controversies, and it is but one link in a very long chain from at least Malcolm (1959) to Armstrong (1968) to Dennett (1991). For want of a better term we may call this continuum *phenomenology denial*.<sup>33</sup> That is, from dream imagery to afterimages to misperceptions, these are all denied on the (reductionist) ground that their existence would impugn and be inexplicable (even inimical) to a strictly materialist science and philosophy. Dennett takes this position so far that *even phenomenology of veridical perception is itself denied to have any real*

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the other eliminativism. Note I am not denying that perception and conception are naturally implicate in actual thought, only affirming that their mutual implication does not permit us to interchange their specific identities within that total thinking; no more than cognition and motivation may be arbitrarily identified because both are implicate in conation.

<sup>33</sup>Cf. Armstrong (1969, p. 125): "I discussed this illusion [distant hills' blueness] recently with a psychologist who works in the field of perception, and he denied that it was an illusion at all. I think his denial was mistaken because the hills *look* to have a color that they do not in fact have, and failure of correspondence of perception to reality is a sufficient condition for perceptual illusion." I concur with the psychologist against Armstrong's affirmation, for color percepts — "out there on the hill," near or far — are a function of both physical and physiological conditions, not solely physical ones; accordingly there is no immutable "fact" of a hill's "real color" that is independent of the (variegated) preconditions of its perception. Thus Armstrong's citation of a "sufficient condition for perceptual illusion" is question-begging because it assumes in advance the truth of his identification of "objective colors" solely with proximal stimuli reflected from, or resident upon, surfaces of distal stimuli. The objective cause of perception is a necessary, not sufficient, condition of perception — here, of colors. Only if it were sufficient might a plausible claim be made for his identification.

existence, in other words *nothing really appears at all in the visual and other sensory fields*, the *presumption* that something does, is merely a “[brain software] User illusion” and “mistaken belief.” That desperate expedient is the logical, predictable consummation begun with identity theory of mid-twentieth century.<sup>34</sup> Dennett is simply more sweepingly thorough with identism’s logic than its earlier practitioners though we suggest that concomitant with his greater consistency comes a *reductio ad absurdum* inherent though less pronounced from the start.<sup>35</sup>

I would suggest this reductionist move is a misconception in its very formulation, for it presupposes that non-veridical imagery is “within” the body-image that is implied by them to house the physical brain (whereas it was indicated above that body-image itself is within the brain). This imagery *in here* (within body-image) is then contrasted by them with a veridical perception *out there* (outside body-image) said to be roving within the stimulus field, so that with their “immediate perception” we are directly perceiving POPOs and objective qualia, ostensibly material objects or their properties existentially independent of percipience, *yet exhibited in perception*. This is a misconception insofar as both visible body and visual environment constituting the total visual field are within CNS. Accordingly if one is going to abolish non-veridical phenomenology (as imagery) then to be consistent one should also outlaw phenomenology of veridical perception, as this has the same neural substrate and localization as that illusory imagery: they are both “in here.”<sup>36</sup>

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<sup>34</sup>Malcolm’s denial of dreams’ real existence was so fantastic that it was rejected by even Armstrong (1968, pp. 70–71), though he commends it as a “gallant attempt”; an attempt at what? we may respectfully ask. Dennett would seem the rightful successor to Malcolm in sheer audacity of such forthright denial and its philosophic elaboration; yet how many readers of Dennett have understood the full meaning of his programme when he thus denies *illusory phenomenology*, redefining veridical phenomena as illusory? Moreover, who wouldn’t deny mere “illusions”? But is this denial of *existence* of non-veridical phenomenology or of what the illusion *represents* as actually present? This seems to be another verbal equivocation, this time upon “illusory.”

<sup>35</sup>We may call this the “radical interpretation” of illusion, in which denial is made of anything actually present in the sensory space; in contrast to a “standard interpretation” of illusion that would implicitly suppose — having no programme to fulfill — that though there be no proximal stimuli present and hence the “perception” be illusory, yet *something sensorial* (not conceptual) is undeniably manifest in the sensory field of consciousness.

<sup>36</sup>Which is in fact the conclusion and argument Dennett implicitly makes, “validly.” Smythies (1994a) formulates a “physicalist dualism” that does justice to both our everyday phenomenology and the neurological evidence, which neatly overthrows Dennett’s (1991) posited absolute dichotomy — hence need for existentialist choice — between dualism and physicalism. Even if one should not accept Smythies’s formula, he has shown that in principle there is no inconsistency in holding both positions concurrently. There is thus no necessity for Dennett’s inexorable choice between dualism and physicalist monism, let alone his “solution” in favor of reductionism, viz. simply denying veridical phenomenology by means of fanciful analogy, a solution that in any case is internally inconsistent (paper in progress).

I have been arguing that Crooks (p. 199) is mistaken in thinking that the representative theory of perception follows by elementary logic from sensory psychology. I have argued that direct realism, properly understood, is perfectly compatible with the facts of neuroscience and psychology. (Smart, 2002, p. 242–243)

I am willing to stake this entire controversy regarding the relative coherence or otherwise of direct realism with science on the following single point. If pitch is numerically identical with frequency, as the Churchlands et al. maintain, then pitch must be spatiotemporally continuous with frequency. Now no one to my knowledge has argued that mechanical radiant energy's localization is within the nervous system, so its dimension of period too must be outside the CNS. But pitch (as heard) must then be outside the CNS if it is identical with its frequency; therefore by unexplained means our audition has left our ears and brains and a sense mode is doing some eavesdropping within the stimulus field, "back" to the distal stimulus (sound source) and is accordingly beyond the ken of current scientific explanation. This brings us full circle to square one: either direct realists furnish us with an intelligible explanation of this unprecedented perception or we are justified in our construal of it as unscientific philosophical speculation.<sup>37</sup>

[I] can agree with the peasant who does not know anything about sound waves that we hear the sound of a carriage on the gravel. We both think of the sound [percept, objective quale, or mechanical radiant energy?] as something out there [in stimulus or sensory field, or straddling both?], but the identification with sound waves is a contingent one and very likely unknown to the peasant. (Smart, 2002, p. 243)

By this passage Smart makes clear his commitment to the intertheoretic identity that pitch is frequency. Is the bucolic peasant ignorant that pitch is numerically identical with sound waves' period or that his percept of pitch is psychophysically correspondent with its objective cause, viz. that dimension of mechanical radiant energy? At any rate, I adduced a number of empirical and logical arguments as to why pitch cannot be *soundly* intertheoretically identified with sound waves' periods and so the continued assumption (in absence of refutation) that they are so identical would seem *petitio principii*.

Finally, I wish to make the observation that there is no necessary logical connection between direct realism and reductionism, contrary to the implicit direction of both Smart's and Hauser's commentaries, which seem to suggest an indissociable complex of "realist reductionism." Intellectual historical circumstances only have conspired to generate a contingent association between the elements of that complex, especially since mid-twentieth cen-

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<sup>37</sup>Rhetorically, might not direct realism be a pseudo-science of perception whose pretensions to scientific grounding have been masked by a terminology that is identical with psychology's but whose conceptual content is incoherent therewith.

ture.<sup>38</sup> By junking direct realism (with its implicit or explicit deviance from psychology) the psycho-neural identity thesis might be made more viable without philosophical ballast antedating the advent of modern science of perception. Its true merits or demerits (whatever these be) could then be appropriately assessed without confusion or unnecessary diversionary arguments to defend its adventitious realist deadweight, contrary to the presumption that somehow direct realism and mind–brain reductionism were one and the same thesis.<sup>39</sup>

### *Pace Smythies*

As Smythies indicates, the sheer amount of empirical evidence that weighs against direct realism is so extensive and its disconfirming significance therefore is so manifest that any further recitation of that literature is akin to the carrying of coals to Newcastle. I wish to add only that the very logic of perception is what constitutes the definitive and confutative disproof of such realism and that empirical psychological and clinical evidence is merely the icing on that logical cake. Thus the nineteenth-century physiologists Mueller and Helmholtz of course did not have access to neuroscience literature of today, yet their critique of naïve realism is still sound in its formulation (Boring, 1942). The sensory field (or at least its material generation and substrate) is localized within the nervous system and what it is a representation of is spatiotemporally divided from it. Thus any programme, philosophical, folk theoretical, or scientific that has attempted (deliberately or inadvertently) to conflate those two localizations must come to grief upon that existential fact of nature, no matter how the illicit conflation may have been disguised (as with “logical” arguments dating from Aristotle or Berkeley), or the noble purpose that such confusion was designed to perpe-

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<sup>38</sup>An exemplary upshot of this multifarious mélange, of whose eclectic components none seem intrinsically implicate with any of the others, is given by the Churchlands (1984, 1986) and Dennett (1991). Intentionality, theory-ladenness, thought-experiments, identity theory and its variants, direct realism and its variants, logical positivism, logical identity, linguistic analysis, intertheoretic identities, neuropsychology, clinical neurology, psychobiology, comparative anatomy, neo-behaviorism and whatnot are said to form a coherent system whose working totality gives the promise to claims of imminent mind–brain reduction, as in psychology falling to neuroscience. Even moral admonition is added to the fray: “We are creatures of matter. And we should learn to live with that fact” (Churchland, 1984, p. 21). One would suppose that with such an overwhelming preponderance of empirical and logical evidence allegedly in favor of one’s position there would be no necessity for recourse to such obscure methods as topic-neutral analysis and adverbialism to counter residual objections. I believe it was Lincoln who said somewhere that when others can’t give you one *good* reason for a proposal, they will instead give you lots of *bad* reasons in its place.

<sup>39</sup>Cf. Kalat (2002) for a tentative expression of this option: “identism without objective qualia” — without philosophical or intellectualized naïve realism, in other words.



trate (e.g., intellectual protection from physiological solipsism). The true *logic* of perception involved in the question must necessarily militate against acceptance of realism.<sup>40</sup>

Nevertheless, I am not sanguine about the possibility of more *empirical* evidence furnishing an inducement to renouncement of direct realism on the part of the majority of present and future philosophers because an indefinite number of "epicycles" may be contrived by realist reductionists to excuse their paradigm, rendering it virtually unfalsifiable. I should like to reemphasize that what is required to avoid an intellectualization of naïve realism is not more facts from psychology or neuroscience so much as *conceptual reorganization* of those facts undoubtedly possessed already by direct realist philosophers.

Another conceptual blockage should be noted in this context, *programmatic blindsiding*. I cannot prove but I suggest that intellectual commitment to direct realism, philosophical behaviorism, reductionism, psycho-neural identity thesis, eliminativism, *inter alia* leads their proponents to willy-nilly disregard the unambiguous statements or inferences to be read or immediately drawn in relevant neuroscience and psychology texts, indeed even not to *perceive* (see Kuhn, 1970) the manifestly evident meaning to be seen there.<sup>41</sup> I am referencing such statements as Churchland's "pitch is numerically identical with sound waves' frequency," or Armstrong's "colors [percepts] are identical with reflective dispositions of distal surfaces." These fly in the face of any text of sensory psychology that might be consulted yet I am not in doubt that these philosophers are conversant with such standard works (indeed they often cite them). The only conclusion I can draw then is that their philosophical prepossessions have made them (figuratively) *agnosic* to this unmistakable purport of elementary psychology. On this account also it is not scientific naivete that has led to their oversights (over-looking).

A paradigmatic illustration of programmatic blindsiding: in Churchland (1985) we read that

The phenomenal features at issue are those such as the objective redness of an apple, the warmth of a coffee cup, and the pitch of a sound. These properties are not excluded from our [intertheoretic] reductions. Redness, an objective phenomenal

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<sup>40</sup>In my paper and in these rejoinders we have shown how implicit naïve realism or an oversight regarding its existence and operations discredits arguments involving intertheoretic identities, public observables, "discursive inference theory" (Firth, 1949), etc. This same thesis can be employed to refute, *inter alia*, the so-called private language argument, postulated "homunculi infinite regresses" ostensibly precluding existence of percepts or even mind *in toto*, constructs of phenomenological and intentional "fallacies," and to furnish a strengthening of the time-gap argument against direct realism. *Simplex sigillum veri*. Readers are invited to contact the author for summary (dis)proofs.

<sup>41</sup>This is technically a fallacy *ad hominem* on my part, to ascribe to realists such a biased origin of their principles; but I offer the suggestion not as fallacy but as historiography of a misconception.

property of apples, is [ontologically] identical with a certain wavelength triplet [proximal stimulus] of electromagnetic reflectance efficiencies [of distal stimuli's surface] . . . Pitch, an objective phenomenal property of sound, is identical with its oscillatory frequency. These electromagnetic and micromechanical properties, out there in the physical world, are genuine phenomenal properties. Despite widespread ignorance [sic] of their dynamical and microphysical qualities, it is these objective [phenomenal] properties to which everyone's perceptual mechanisms are keyed. (p. 18) [Query: How can purely physical "electromagnetic and microphysical" properties "out there in the physical world" have any "phenomenal," i.e., perceptible, admixture, to so produce hybrid "objective phenomenal properties."]

Churchland (p. 27) cites Land (1977) as his source for these claims regarding color, yet what we find there seems to have little or no relation to those claims:

One can say the stimulus for the [phenomenal] color of a [psychophysically correspondent] point in an area [distal stimulus] is not the radiation [flux] from that [distal] point. The task of psychophysics is to find the nature of the stimulus for that color [p. 47] . . . In the triplets of integrated reflectances we have identified a highly accurate *physical correlate* [emphasis added] of color sensations [p. 52] . . . The [three reflectances on three wave bands] emerge as the physical determinants [proximal stimuli] in the partnership [psychophysical correspondence] between the biological system [visual processing] and areas in the external world [distal stimuli, p. 62]. (Land, 1977)

There are at least three points at which Churchland's account is at variance with Land's, upon which Churchland's claim of intertheoretic reduction of "color" is ostensibly based. First, there is no mention in Land's paper of any fictitious "objective phenomenal property" of color qualia. Instead, "color" and "color sensation" are used interchangeably throughout Land's text and the context of his terms makes very clear the meaning to be ascribed to them: they reference sensory psychology's percepts ("out there") that are a function of "retinex" (retina plus cortex) processing within the CNS, specifically of the retinal ternary cone subsystems whose outputs are psychophysically correspondent to triplets of integrated reflectances (p. 52 *et passim*). Further, Churchland bifurcates Land's "color" to mean "color sensations" and "objective color quale" where Land has only one intended referent, viz. visual percept. (Land *colloquially* uses "color" to signify distal reflectance, e.g., "Munsell color chip.") And whereas Land cites the retinex system to mean the neural substrate of *phenomenal color*, Churchland's "three-element chords in some neural medium" (1985, p. 27) do not signify brain substratum for phenomenal color because this would be antithetical to his reductionist programme: "The objective qualia (redness, warmth, etc.) should never have been 'kicked inwards to the minds of observers' in the first place," but should instead be localized outside the CNS (Churchland, 1985, p. 19).<sup>42</sup>

<sup>42</sup>Presumably his "neural three-element chords" are the substrate for dispositions to behave toward, have beliefs about, and spatially localize objective color qualia outside the observer (cf Armstrong, 1968, pp. 245–269).

The second variance with Land's construct is in the localization of *visible color* (percept or objective quale). Whereas Land of course situates phenomenal color ("sensations of color" or percepts) within CNS (retinal and cortical processing), Churchland puts his objective quale at the surface of the distal stimulus: "Redness [color quale], an objective phenomenal [surface] property of apples [distal stimuli] . . ." This color quale in the stimulus field is contrasted by Churchland with "sensations of color" (1985, p. 27) that are conjectured by him to be ontologically identical with neural processes. As Land makes no such bifurcation between color sensations and color qualia, he accordingly has no need to distinguish their localizations, which in fact we find he has not done in his paper.<sup>43</sup> By "color sensations" and "lightnesses" Land means *phenomenal visual qualities localized in the CNS that are the psychophysical correlate of reflectance triplets (qua fractionated beam) in the stimulus field*; by "color sensation" Churchland means *a neural process that is the psychophysical correlate of the objective quale of visible color localized in the stimulus field (upon distal surfaces), from which quale the triplet reflectances are jounced*. The two meanings are of course utterly incommensurate and we may presume it is the latter that requires correction, not the former.

The final discrepancy to be cited between these accounts is the nature of the relationship stated to hold between the stimulus variable and its phenomenal upshot (color percept or objective quale).<sup>44</sup> Whereas Land explicitly repeats *passim* that this relationship between phenomenal color and reflectance triplets is one of *psychophysical correspondence* (quantified correlation of physical and psychological continua), Churchland not only substitutes an objective quale in the stimulus field for Land's color percept in CNS but transmogrifies Land's psychophysics into *intertheoretic identification* (ultimately between percept and its objective cause). Yet it would seem that functional relations between stimulus and sensory fields and an ontological identity of their contents are not interchangeable formulae.<sup>45</sup>

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<sup>43</sup>I am sure that if Land were alive today and questioned on the matter he would be quite bewildered as to the very meaning of that confabulated bifurcation itself.

<sup>44</sup>These three objections may with equal propriety be leveled at the direct realist explanation of color given by Armstrong, 1969, as the reasoning in both accounts presupposes visible color at distal surfaces and the ontological identity between that color and surface reflectance or surface properties as efficiency.

<sup>45</sup>Churchland misconstrues Land's *psychophysical correspondence* between phenomenal color and reflectance triplets to mean psychophysical correspondence between neural processes — "color sensations" — and an objective quale of color said to be numerically identical with the spectral composition of a reflectance triplet "at" the "colored" distal surface — not, apparently, at the eye. I say "apparently" because his and Armstrong's account of objective, exteriorized color is given fragmentarily and besides, overall, really makes no sense in the final, scientific analysis. Further, Churchland's *intertheoretic identity* is between the color quale "out there" and the reflectance triplet at the distal surface. If there is numerical identity between

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quale and triplet there must be concomitant spatiotemporal continuity and hence an “identical” localization of them at distal stimuli. One small question: How do we see “back” from the radiant flux at the eye to the objective color quale at the distal surface?

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