

# Who Is Blind to Blindsight?

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**COMMENTARY ON:** Charles Siewert. (1999). *The Significance of Consciousness*. Princeton University Press. 392 pp. ISBN: 0691027242. Price: \$US 42.50 hbk.

**ABSTRACT:** This paper uses the explanation of blindsight generated by a two-systems theory of vision in order to set Siewert a dilemma. Either his blindsight examples are modelled on actual blindsight, in which case certain reductive theories of phenomenal consciousness will have no difficulty in accommodating them. Or they are intended to be purely imaginary, in which case they will have no force against a reductive naturalist.

## 1. Introduction

In commenting on Charles Siewert's recent book, *The Significance of Consciousness* (1998), I find that I can either write a little or a lot. Siewert makes many mistakes in his attacks on various proposed reductive explanations of phenomenal consciousness. (Or so I believe -- my copy of his book now has a great many pencilled crosses in the margins.) And there is a good deal to be said in defence of the sort of dispositionalist higher-order thought theory which I myself favour. But if I were to say all that, I should find myself just repeating much of my own recent book, [\*Phenomenal Consciousness: A Naturalistic Theory\*](#) (2000b). So I shall confine myself to pointing out a mistake which Siewert makes concerning the significance of blindsight for assessing a number of reductive accounts of consciousness, which lies at the heart of his discussion; and I shall pick up a few further matters arising.

Siewert uses blindsight-type examples in his very definition of his topic. Phenomenal consciousness is said to be that property which we know of with first-person warrant -- shared by episodes of silent speech, other imagery, and sense-experience -- and which is absent in the various blindsight cases. A whole swathe of reductive theories are then charged with implying that some of these blindsight cases are strictly impossible, and these theories are therefore convicted of *consciousness neglect*.

Now, I have no quarrel with Siewert's characterisation of phenomenal consciousness, and with the importance which he attaches to a first-person perspective. But I do think that many reductive theories will have no trouble in explaining the absence of phenomenal consciousness from the blindsight cases, hence rendering much of Siewert's subsequent discussion otiose.

Siewert develops his series of blindsight examples in apparent ignorance of (what I regard as) the best theory of blindsight. This theory will be set out in section 2 below, before its significance for Siewert's discussion of consciousness is outlined in section 3. (My criticisms of Siewert will then be elaborated through sections 4 and 5.) This issue matters because, as we shall see, it is important to Siewert that his examples should be realistic ones. Although he isn't committed to the actual possibility of either *spontaneous blindsight* (cases in which subjects become self-cuing, and spontaneously entertain true thoughts about what is there in their blind fields) or *reflexive blindsight* (cases in which subjects spontaneously entertain higher-order thoughts about their states of blind seeing), he *is* committed to claiming that these examples are smooth and natural developments of real blindsight, preserving the essential structure of the latter.

## 2. The Two-Systems Theory of Blindsight

Although the phenomenon of blindsight is, initially, highly counter-intuitive, it is not especially surprising when seen from the perspective of neurophysiology. For, as Weiskrantz (1986) points out, there are a number of distinct sub-cortical projection-areas for visual information from the retina. In particular, besides the main projection from the retina to area V1 in occipital cortex (via the lateral geniculate nucleus in the thalamus), there is also a substantial, and phylogenetically older, projection to the superior colliculus in the mid-brain. (In fact this sub-cortical pathway alone is as large as the whole of the auditory nerve.) And from the superior colliculus there are substantial projections, not only to motor and pre-motor neurons in the brainstem and spinal cord, but also to the parietal cortex, which is hypothesised to be particularly involved in the control of movement (see below) -- but none to the temporal cortex, which seems to be intimately connected with conscious experience (again, see below). So even with cortical area V1 completely removed, substantial amounts of visual information should be available in parietal cortex for the control of movement.<1>

The explanation of blindsight, therefore, is that visual information is still available (in parietal cortex) to control movement, which is not available (via temporal cortex) for

conscious awareness. It might be wondered, however, how the availability of visual information for the control of movement would enable blindsight patients, not only to point and grasp appropriately (as they can), but also to answer questions, for example concerning the orientation of a grating. Milner and Goodale (1995) suggest that such patients may be influenced by subtle behavioural and motor-programming cues of which they lack conscious awareness, e.g., to begin tracing out the line of orientation of the grating with a hand or with the eyes.

Milner and Goodale (1995) ground their explanation of blindsight in a two-systems theory of vision. They review a wide variety of kinds of neurological and neuropsychological evidence for the substantial independence of two distinct visual systems, instantiated in the temporal and parietal lobes respectively. And they argue for the distinctness of the spatial information encoded in each -- object-centred spatial descriptions within the temporal-lobe stream, required for object-recognition and recall; and exclusively agent or limb-centred spatial information within the parietal-lobe stream, required for detailed control of movement. They conclude that the parietal lobes provide a set of specialised semi-independent modules for the on-line visual control of action; whereas the temporal lobes are primarily concerned with more off-line functions such as visual learning and object recognition. And only the experiences generated by the temporal-lobe system are phenomenally conscious, on their account.

To get the flavour of Milner and Goodale's hypothesis, consider just one strand from the wealth of evidence they provide. This is a neurological syndrome called *visual form agnosia*, which results from damage localised to both temporal lobes, leaving area V1 and the parietal lobes intact. (Visual form agnosia is normally caused by carbon monoxide poisoning, for reasons which are little understood.) Such patients cannot recognise objects or shapes, and may be capable of little conscious visual experience; but their sensorimotor abilities remain largely intact.

One particular patient -- D.F. -- has now been examined in considerable detail (Goodale et al., 1991, 1994a, 1994b; Milner et al., 1991; Carey et al., 1996). While D.F. is severely agnostic, she is not completely lacking in conscious visual experience. Her capacities to perceive colours and textures are almost completely preserved. (Why just these sub-modules in her temporal cortex should have been spared is not known.) As a result, she can sometimes guess the identity of a presented object -- recognising a banana, say, from its yellow colour and the distinctive texture of its surface. But she is unable to perceive the shape of the banana (whether straight or curved, say); nor its orientation (upright or horizontal; pointing towards her or across). Yet many of her sensorimotor abilities are close to normal -- she would be able to reach out and grasp the banana, orienting her hand and wrist appropriately for its position and orientation, and using a normal and appropriate finger grip.

Under experimental conditions it turns out that although D.F. is at chance in identifying the orientation of a broad line or letter-box, she is almost normal when posting a letter through a similarly-shaped slot oriented at random angles. In the same way, although she is at chance when trying to discriminate between rectangular blocks of very different

sizes, her reaching and grasping behaviours when asked to pick up such a block are virtually indistinguishable from those of normal controls. It is very hard to make sense of this data without supposing that the sensorimotor perceptual system is functionally and anatomically distinct from the object-recognition system.

If the explanation of blindsight generated by Milner and Goodale's two-systems hypothesis is correct, then it seems quite unlikely that even Siewert's first proposed imaginary extension of the blindsight phenomenon is, in reality, naturally possible. This is a form of self-prompting blindsight, in which a subject would spontaneously entertain the very same kinds of thought which actual blindsight patients voice in forced-choice experimental situations (e.g., "horizontal" or "vertical" when asked to guess the orientation of a grating). If such answers are actually cued, non-consciously, by motor-programming information (e.g., by beginning to trace the orientation of the grating with one's eyes), then it seems very unlikely that a subject could ever become self-cuing with any degree of reliability.

Granted, if the blindsight patient were to ask himself just the right kind of question in the circumstances, then presumably he could self-generate the right answer. If he asks himself the question, "Am I seeing horizontal or vertical lines?", he would presumably come up with the same correct answer as before. But what are the chances that he will ask himself the right question? There are just too many questions one *could* ask at any given moment ("Am I seeing an X or an O?", "Am I seeing a moving light?" and so on) for it to be likely that a blindsight patient could ever become capable of reliable self-cuing.

We can set this concern aside, however, and assume that blindsight patients *could* in principle learn to use sub-conscious motor-programming information in order to ask themselves the right sorts of questions, as well as to generate the correct answers. For Siewert is explicit in insisting that his arguments don't require that his imagined extensions of the blindsight phenomenon should actually be possible. So let us grant, for the sake of argument, that Siewert's imagined cases of *spontaneous* blindsight and *reflexive* blindsight are naturally possible as well as conceivable.

### 3. A Dilemma

We are now in a position to set Siewert a dilemma, as follows.

*Either* his examples of spontaneous and reflexive blindsight are supposed to preserve (and extend) the nature of actual blindsight -- in which case some of his opponents will have no difficulty in explaining why phenomenal consciousness should be absent from such examples.

*Or* those examples can be wholly imaginary, in a way which doesn't require them to conform to or respect the facts about actual blindsight -- in which case two difficulties

emerge: (a) his initial definition of phenomenal consciousness becomes question-begging, and (b) his opponents will have no difficulty in responding to an argument based on merely-imaginary cases.

Let me elaborate on these points in turn.

To see the first horn of the dilemma, notice that many of Siewert's opponents offer reductive accounts of phenomenal consciousness which are fully capable of explaining why any imagined extension of real blindsight would still involve experiences which are *not* phenomenally conscious. In particular, the (otherwise very different) accounts of Tye (1995) and Carruthers (2000a, 2000b) both propose that phenomenal consciousness will only be present when the experiences in question are *poised* to have an impact on, or are *immediately available to*, the conceptual systems which are hypothesised to have a constitutive role in phenomenal consciousness (first-order in the case of Tye, higher-order in the case of Carruthers). And presumably experiences which are contained in the sensorimotor visual system are *not* so poised, or so available, even when they can have an indirect effect on the relevant conceptual systems by cuing the outputs of those systems.

The suggestion, in effect, is that Siewert's opponents can make use of the Milner and Goodale two-systems hypothesis to explain why his blindsight examples aren't cases of phenomenal consciousness, even though they might superficially seem to fit the description provided in a given proposed reductive account. So although it might *seem* that in spontaneous blindsight we have perceptual information which is available to conceptual thought (and which would thus be phenomenally conscious by Tye's account), and although it might *seem* that in what Siewert calls "reflexive blindsight" we have perceptual information which is available to higher-order thought (and which would thus be phenomenally conscious by my own account), in fact in neither case is there the right *kind* of availability for the theories in question to apply.

So Tye and I can maintain, consistently with the truth of our accounts, that Siewert's blindsight cases aren't cases in which phenomenal consciousness would have to be present after all. So neither of us can be found guilty of *consciousness neglect* -- we can both accept that phenomenal consciousness is what is known of by subjects with first-person warrant and which is absent in the blindsight cases.

My guess is that Siewert (*a priori* philosopher that he is) will merely be irritated by this use of neuropsychological theory to rebut his argument, and that he will attempt to regroup by going even more imaginary on us. My guess, that is, is that he will want to respond somewhat as follows: forget actual blindsight and its neuropsychological underpinnings; we can surely imagine cases where subjects have perceptual information which *is* poised to impact on conceptual thought (Tye), or where subjects have perceptual contents which *are* immediately available to higher-order thought (Carruthers), but where those subjects *don't* enjoy phenomenally conscious experience. So these theories do neglect phenomenal consciousness after all. But such a response would place Siewert on the second horn of my dilemma.

The first point to emphasise in connection with the proposed manoeuvre, is that it would render Siewert's initial explanation of the nature of phenomenal consciousness completely question-begging. For recall that he defines phenomenal consciousness as being that feature which we know of with first person warrant in our own case, which is shared by episodes of silent speech, sense-experience and so on, and *which is absent in the blindsight cases*. The final clause makes good sense, and is entirely intuitive, when what we are talking about are cases of *actual* blindsight and possible (imaginable) extensions thereof. But if "blindsight cases" is now to be understood much more broadly, in such a way as to cover anything described in any proposed reductive explanation of consciousness, then the attempt to legislate phenomenal consciousness away from such cases is no longer so acceptable -- to put it mildly!

Moreover, even setting this point to one side, what we would now have here is a claim of the mere imaginability, or conceivability, of "absent qualia", and this is no threat to a good reductive naturalist. Although Siewert *claims* that his examples are intended to be realistic (i.e., to be not too far removed from the real world), he would now be arguing from the conceivability of a (limited form of) zombiehood. He would be arguing that we can surely imagine someone who is like us in all those respects specified by any reductive theory of phenomenal consciousness, but who is wholly lacking in conscious visual experience. And this sort of argument is of no threat to any of us. This point will be elaborated in the sections which follow.

## 4. On Concept and Property

Tye and I can (and should) allow that we have concepts of phenomenal consciousness -- specifically, *recognitional* concepts which we can apply "straight off" to our conscious experiences -- which don't conceptualise our phenomenally conscious states in terms of their poisedness to conceptual thought, or in terms of their direct availability to higher-order thought (c.f. Loar, 1990, 1999). So, when we deploy these recognitional concepts, we shall have no difficulty in conceiving of the absence of phenomenal consciousness while at the same time conceiving of the presence of the relevant functional / intentional structures. <2> We shall be able to think, without self-contradiction, "Someone might fail to have *this* type of experience even though they had experience which was available in the right way to first-order or higher-order thought". But for all that, the properties involved in phenomenal consciousness may actually be constituted by -- and be reductively explicable in terms of -- the availability of perceptual (and quasi-perceptual) states to the relevant kind of conceptual thinking.

The point is that, even granted that we have first-person authority with respect to our own phenomenally conscious states, there is no reason to think that those states are transparently represented in the recognitional concepts which we apply to them. When I recognise in myself a phenomenally conscious experience, I do not recognise or conceptualise it *as* a certain kind of perceptual state available to first-order/higher-order conceptual thought. But for all that, it may be that this is the very property which my

recognitional concept picks out. My first-person authority extends to the *occurrence* of phenomenal consciousness, and perhaps also to the *distinctness* of phenomenally conscious states from one another, but there is no reason to think that it also extends to those properties which may or may not be *constitutive of*, and/or *reductively explain*, phenomenal consciousness.

There is, of course, *a* conception of what a property is, according to which distinct concepts will almost always correspond to distinct properties. This is the conception of a property as a *function from possible worlds to extensions*.<sup><3></sup> And then from the distinctness of our concept of phenomenal consciousness from the concept of a percept which is available to first / higher-order thought, it will follow that the properties are distinct as well. But this conception of properties certainly isn't mandatory, and it is one which any naturalistic philosopher would do well to reject for purposes of reductive explanation, in my view. See my 2000b for discussion.

(For example, on this conception the Goodman-style concepts of *grue* and *bleen* pick out perfectly respectable properties. But these are, surely, not real aspects of the natural world; and the "change" from *grue* to *bleen* is not a real change. See also Mellor, 1991, and many of the papers collected in Oliver and Mellor, 1997, for the distinction between conceptions of *property* which one needs in order to do semantics, on the one hand, and in order to do philosophy of science / metaphysics, on the other.)

## 5. On Reductive Explanation and Metaphysical Supervenience

Siewert will respond to our claim that phenomenal consciousness may be constituted by perceptual content being available to first / higher-order conceptual thought, by pointing out that the claim will, if true, have to be metaphysically necessary -- in much the same way that "Water is H<sub>2</sub>O" is metaphysically necessary. But (he says) our concepts of phenomenally conscious states aren't used in the right kind of way to generate such necessities -- we don't use them with the intention of thinking *through* the appearances which guide their application, intending to refer to some sort of underlying essence, whatever it may be; rather we use them to refer to the appearances (the phenomenal properties) themselves.

But there are two mistakes here. The first is that a successful reductive explanation of phenomenal consciousness doesn't require the truth of a (metaphysically necessary) identity claim, like "Water is H<sub>2</sub>O". It just requires that phenomenal consciousness should *supervene* (metaphysically) on the reducing properties. The second mistake is that the truth of such a metaphysically necessary supervenience claim doesn't require that we use the terms referring to the reductively explained properties in anything like the manner of natural kind terms such as "water".

To see these points, suppose that we use the term "watery stuff", not as a natural kind term intended to designate an underlying essence, but simply as tied to the manifest properties of water (clear, colourless, liquid at room temperatures, potable, and so on). So anything in any world which had these properties would count as watery stuff, in much the same way that any state which had the sort of subjective feel distinctive of phenomenal consciousness would count as phenomenally conscious. Still it is true, in the actual world, that watery stuff is constituted by H<sub>2</sub>O. And it is also true that the property of being H<sub>2</sub>O, together with the laws of nature, reductively explains the manifest properties of watery stuff. Moreover, because of these facts, it is also the case that watery stuff supervenes metaphysically on H<sub>2</sub>O. Any world in which H<sub>2</sub>O exists, and in which the laws of nature are held constant, will be a world containing watery stuff. (God surely didn't need to do anything *else* to create watery stuff, once he had put H<sub>2</sub>O into our world.)

Note that there is no special mystery about how the metaphysical supervenience of watery stuff on H<sub>2</sub>O comes about. Because the properties of H<sub>2</sub>O (together with the laws of nature) fully explain the properties of watery stuff, we have every reason to think that watery stuff, in our world, is *constituted by* H<sub>2</sub>O. That is, we have every reason to believe that there is nothing more required for being this-worldly watery stuff, except being H<sub>2</sub>O. And this then commits us to belief in metaphysical supervenience -- in any world in which the constituting properties (i.e., H<sub>2</sub>O) and laws remained the same, there would also be watery stuff.

So, too, then with phenomenal consciousness. It can be true that our concepts of phenomenally conscious mental states are not used with the intention of designating any underlying essence. But it can also be true that such consciousness is constituted by, and reductively explained in terms of, the availability of perceptual contents to first / higher-order thought. And in that case it will have to be true that any world which contains creatures with perceptual contents available in the right sort of way to first/higher-order thought, and in which the laws of nature are held constant, will be a world containing phenomenal consciousness.

## 6. Conclusion

I have argued that Siewert's blindsight-type cases and surrounding arguments are of no threat to a decent reductive theory of phenomenal consciousness. But of course, merely showing that a given class of theories aren't *refuted* by certain conceivability-experiments is quite different from showing that one of those theories is correct. And merely showing that it is (epistemically) *possible* that phenomenal consciousness might supervene metaphysically on, and be reductively explicable in terms of, first/higher-order thought, is not the same as showing that this possibility is actual.

So there is a good deal of work remaining to be done, in order to demonstrate that we should accept that phenomenal consciousness consists in perceptual content made



available to first- or higher-order thought, and in demonstrating that a successful and satisfying reductive explanation of phenomenal consciousness is the result. But that is a story to be developed elsewhere, and which I have actually tried to tell (with respect to dispositionalist higher-order thought theory) in my 2000b, at length. My present point has just been to show that such stories are not ruled out, or even rendered implausible, by Siewert-style blindsight conceivability experiments.<4>

## Notes

<1>. Recall that although Helen -- the blindsighted chimpanzee who had had the whole of area V1 surgically removed -- was incapable of recognising or identifying objects by sight, she could pick up a small object like a grain of rice from the floor, and she could still snatch a moving fly out of the air in front of her. (Humphrey, 1986.)

<2>. Siewert briefly considers and discards this sort of manoeuvre on page 162 of his book. But his response is very weak. He argues that we don't actually possess recognitional concepts of the type in question, on the grounds that we would reject out of hand the suggestion that a sunflower might be phenomenally conscious. This shows, he thinks, that there must be sufficient structure to our concepts of phenomenally conscious states to enable us to rule out such a possibility. But at least two things go wrong here. First, even if we have *some* concepts of phenomenally conscious states which have sufficient structure to entail that sunflowers don't possess such states, it doesn't follow that *all* of our concepts do. And in particular, it doesn't follow that we don't also have available to us some purely recognitional concepts for such states -- and these might be the ones which are deployed in the absent-qualia thought experiments. Second, Siewert doesn't even succeed in establishing that it is something intrinsic to (some of) our concepts of phenomenally conscious states which rules out the possibility of sunflower consciousness. It may rather be our surrounding beliefs about sunflowers, and about phenomenal consciousness, which collectively entail that sunflowers aren't conscious. And in support of this alternative, it can be said that we actually have no difficulty in *conceiving* of a sunflower being conscious -- we just have to think, "That sunflower might be undergoing states of *this* sort"; no contradiction here emerges.

<3>. Note that it is just this conception of properties which lies at the heart of the anti-reductive arguments of Chalmers, 1996; see my 2000b for discussion and critique.

<4>. Thanks to David Chalmers for helpful comments on an earlier draft of this paper.

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