Psychology, Neuroscience, and the Consciousness Dilemma

Katalin Balog

In this paper, I present a dilemma for theorizing about the connection between phenomenality (the "what it's like" character of mental states) and a particular form of cognitive awareness, i.e., *cognitive accessibility*. Either there is a conceptual connection between phenomenality and cognitive accessibility that implies a necessary connection, or there is no conceptual connection but then the empirical evidence will – for principled reasons – underdetermine the theory describing the exact nature of the connection.

Before I get to exact nature of the difficulty let me explain some key terms. Then I will review a particular proposal (Ned Block 2007) as to how evidence bears on the question of the separability (and consequently distinctness) of phenomenality and accessibility.

Ned Block in a series of papers (Block, 1990, 1995, 2002 and 2007) has made a *conceptual* distinction between *phenomenality* and different shades of *cognitive consciousness*. Cognitive consciousness involves a mental state's possessing a particular kind of representational content or a particular cognitive role. Block distinguishes among various kinds of cognitive consciousness. A mental state is *self-conscious* if it involves a first-person representation of one's self. It is *reflectively conscious* if one has a "higher order" thought about that state to the effect that one is in that state. A state is *access conscious* if it is made available to cognitive processing; more precisely, if it is broadcast (in the occurrent, rather than dispositional sense) for free use in reasoning and direct rational control of behavior. This notion is fairly straightforwardly based on

Baars' (1988, 1997) notion of *global workspace.*[1] A state is *accessible* when with the proper direction of attention the state can actually become accessed, like when we notice a humming noise that we have been hearing for a while. According to Block, when we say of some thought that it is conscious we might mean any of these aspects. In this paper I will be concerned with the last two concepts of cognitive consciousness: *access consciousness* and *accessibility.*

Phenomenal consciousness, on the other hand, involves experiential quality, the "what it's like" feature possessed by some mental states and processes. For example, when listening to, e.g., a Bartók string quartet, there are various auditory and other sensations, feelings of excitement, agitation and so forth that partly make up my experience. On any particular occasion, there is something it's like to have these experiences. Phenomenal consciousness is a determinable - there being something it's like -, with various kinds of determinates, i.e., the specific ways it is like. In the philosophical literature on consciousness these determinate kinds of phenomenal consciousness are called 'qualia'. There are qualia associated with the various senses, i.e., auditory qualia, visual qualia, etc., and also distinctive kinds of qualia associated with various emotions, reflective thinking, meditation and so forth.

It is phenomenal, and not cognitive consciousness that comprises what David Chalmers calls the "Hard Problem" for science. The concept of cognitive consciousness is the concept of something that fulfills a certain role. It might take many years of painstaking research to figure out what neural configurations and

[1]Subpersonal mental representations like, e.g., the representations posited in theorems of language processing (Chomsky 1975), vision (Marr 1982), etc., are unconscious in all of the above ways. Mental states posited by Freudian theory are not access conscious (access is available only with the help of your analyst) but may be self conscious and reflectively conscious. It is not implausible that my cat's mental states are access conscious but not self or reflectively conscious.

processes play that role but in a sense the research project is straightforward. The situation is different with respect to phenomenal consciousness. Our notion of phenomenality is not a functional one and it is very hard to see how any neurophysiological process can possibly *be* consciousness.

In any case, a typical human conscious episode, say the pain a person experiences when she has a headache, involves both phenomenal and cognitive consciousness. There is the phenomenal feeling of the headache: there is something it's like to have it. This feeling will typically involve different sensations and will change over time. The state is accessible and is often access conscious, since it may cause her to decide to take an aspirin, and sometimes also self and reflectively conscious since she will judge that she is experiencing a headache.

1) The first horn: no conceptual connection between phenomenality and access, or accessibility

For all we have said so far, cognitive and phenomenal consciousness may be entirely separable or they can be metaphysically or nomologically linked. Block argues that cognitive and phenomenal consciousness can be pried apart and are not just two aspects of the same phenomenon. He claims that it is possible for a mental state to be, e.g., access conscious, or accessible, but not phenomenally conscious, and *vice versa*.

One of his arguments for the possibility of access without phenomenal consciousness involves blind sight. People with blind sight experience no visual sensations, still apparently can obtain information about their environments via vision. In such cases Block thinks it is plausible that there is at least partial access to visual information, but there is reason to think that it is not accompanied by phenomenal consciousness since the subjects report that they experience no visual sensations.

Arguing for the existence of phenomenal consciousness without access or even accessibility is more difficult. There is a view – Block calls it *epistemic correlationism* – according to which the *metaphysical* relationship between these two is not scientifically tractable. While cognitive access is intrinsic to our *knowledge* of phenomenology, it might or might not be *constitutive* of the phenomenal facts themselves. According to the epistemic correlationist, there is no possible empirical evidence that could tell us one way or another. Block 2007 aims to refute this view. Block's thesis is that the issue of the relationship between phenomenal and access consciousness is an empirical one; and that moreover, the issue is approachable by the same empirical methods we employ in science in general. Block suggests that by looking at the relevant data, and employing the method of inference to the best explanation, we can already mount an argument for the specific thesis that access consciousness – and even accessibility – is not constitutively necessary for phenomenality.

Consider the following kind of experiment which provides crucial support for Block's thesis. Following Sperling's (1960) famous experiments, Landman et al. (2003) showed subjects eight rectangles in different orientations for half a second. The resulting experience *e* is phenomenal, according to introspective reports of subjects, but certainly not all of it is access conscious at the same time. After that brief exposure, subjects are only able to report on the precise orientation of up to four of these rectangles. Given the model of access consciousness assumed in Block's paper as broadcasting of representations in a *global workspace*, this experiments show, to my mind conclusively, that access consciousness is not constitutively necessary for the phenomenality of the experience. This finding is further supported by the neurophysiological data Block cites, which show the neural implementation of sensory representations and the neural implementation of global access to be physically separate and independent from each other.

These experiments, which compose the bulk of Block's supporting evidence, however, do not show *accessibility,* as opposed to *access*, is not constitutively necessary for phenomenality. Notice that the above interpretation of these experiments crucially relies on the subjects' introspective report of the phenomenality of their *entire visual experience*, including those aspects of the experience whose content is not access conscious. *Introspective awareness* of the phenomenality of the entire experience was part of the evidence in the Sperling and Landman experiments for why *access* is not necessary for phenomenality. But these data leave room for the hypothesis that *accessibility is* constitutively necessary for that phenomenality.

Unlike the thesis Block (2007) is criticizing (i.e., the thesis that access consciousness is constitutive of phenomenality), the *Accessibility thesis* – i.e., the thesis that a*ccessibility* is constitutive of phenomenality – seems a viable hypothesis. None of the data discussed by Block rule it out, or even make it implausible. But if the accessibility thesis is true, then some interesting consequences follow – for example, that despite suggestions to the contrary by Block (2007), activations in the "fusiform face area" of "visuo-spatial extinction" patients, or any other early visual state that is not accessible, could not be phenomenal.[2]

The issue of epistemic correlationism can be raised anew with respect to the Accessibility thesis. Is it the case that in time we might find empirical evidence that supports or refutes the thesis, or is it the case, as the epistemic correlationist claims, that we are not epistemically situated to ever find out? It might seem that the problem is a straightforwardly empirical one. Determine the natural kind that constitutes the neural basis of consciousness in uncontroversial cases of phenomenal consciousness and then determine whether those neural kinds are

[2] Block (2011) keeps to discussing the relationship between cognitive access and phenomenality and refrains from advancing any thesis about the relationship of *accessibility* and phenomenality.

present in the case of, say, an inaccessible visual representation. An insurmountable problem seems to arise, however: should one include the machinery of accessibility that exists in the clear cases in the natural kind? The answer clearly depends on whether accessibility, is, as a matter of fact, part of phenomenality. But since this is the *very* question we are trying to answer, it looks like we are up against an epistemic blind alley.

I want to advance an argument that this epistemic problem cannot be overcome. The point is simple. Can we have evidence for the presence of phenomenality that doesn't involve introspection, a mark of accessibility? As far as attributing phenomenality (or the lack of it) to perceptual states that are outside of introspective awareness, there is a general issue that doesn't seem to depend on the particular nature of evidence. As Block (2007) points out, the hope is that at some point we will have enough empirical evidence that we can make an *inference to the best explanation.* Take a representation *r* that one is not even accessible, e.g., one involved in early visual processing. According to this view, at some stage of empirical research it will either turn out that the hypothesis that accessibility is part of phenomenality fits better into an overall framework explaining the empirical data or it is the opposite. However, and that is where this line of thought founders, for any explanation that appeals to the physical/functional features of *r* in conjunction with its *phenomenality*, one can construct another explanation that merely appeals to its physical/functional properties. What *does* the work in the explanation is the physical/functional properties of *r*; its phenomenality *qua* phenomenality – or lack thereof – doesn't add anything to its causal profile (that holds whether you are a physicalist or a dualist). It is hard to see how appeal to the physical/functional properties + the phenomenality of *r* can be explanatorily superior to a mere appeal to is physical/functional properties. The reason for this has to do with the directness and non-functional nature of phenomenal concepts. Because we conceive of

phenomenality in this way, the question of whether phenomenality can separate from accessibility seems especially ill-suited for scientific treatment. This I take it is the same issue that makes the hard problem hard in the first place.

This is not the last word on the issue of the empirical tractability of the relationship between cognitive accessibility and phenomenality. Considerations of simplicity, for example, might come into play – however, at the present moment it is hard to think how such simplicity considerations can be decisive enough to adjudicate the issue. The ball is in the court of those who argue for empirical empirical tractability; not the other way around.

David Chalmers (1997), e.g., thinks that even if cognitive accessibility is not conceptually necessary for phenomenality, there is a strong default assumption to the effect that phenomenality correlates with accessibility. Such a hypothesis might be simpler than the alternative – after all, I am aware of the phenomenality of only those experiences that I can access – but it seems this cannot be decisive evidence. Let's suppose that phenomenality *in fact* can occur without awareness. If my argument about the general problem of explanatory parity of the two hypothesis positing vs denying the phenomenality of some inaccessible perceptual state is correct, no evidence could be found that would unseat that hypothesis – even if it is wrong.

The upshot of this is not that there isn't an immense amount that cognitive neuro-science is going to teach us about phenomenality and accessibility. The point is that there is a peculiar sort of limitation of how much science can find out when it comes to the question of the relationship of phenomenality and accessibility.

2. The second horn

Now let me say something about the other horn of the dilemma. So far we have assumed that there is no conceptual connection between phenomenality and

awareness. However, one might want to argue that accessibility is conceptually necessary for phenomenality. The idea is that one's conceptual grasp on phenomenality involves accessibility not just in the obvious sense that accessing an experience is one's only way of becoming aware of its phenomenality but rather in the sense that phenomenality is not *conceivable* in the absence of accessibility. One might immediately object that analytic functionalism, i.e., the view that phenomenal concepts are analyzable in functional terms, is implausible on a priori grounds. Our concepts of phenomenal character are not analytically equivalent to functional concepts that ascribe a certain causal profile to mental states. However, though plausibly there are no analytically *sufficient* conditions for phenomenality in functional terms, it is much less clear that there are no analytically *necessary* conditions.

The idea is that we don't have a conception of phenomenal states that are inaccessible. Whereas I think (pace Berkeley) that one can have the concept TREE and the concept OBSERVED and understand what it is for something to fall under one but not the other, it is not clear that one can have the concept PHENOMENAL and the concept ACCESSIBLE and understand what it is for one to have a phenomenal experience that one is not accessible. There is a paradoxical air to trying to conceive of a phenomenal state that is not accessible. You can, for example, imagine a tree that is not observed. Yet what would it even be to imagine a phenomenal experience that is not accessible?

In any case, if this is correct, the science of consciousness would be in a better place, at least as far as the particular issue of finding the neural correlates for phenomenality goes – if only by virtue of eliminating the question about the possible separation between phenomenality and awareness.

References:

Baars, B. (1988) *A cognitive theory of consciousness.* Cambridge University Press.

Baars, B. (1997) *In the theater of consciousness: the workspace of the mind.* Oxford University Press.

Block, N. (1990) Consciousness and accessibility. *Behavioral and Brain Sciences* 13(4): 596–598.

Block, N. (1995) On a confusion about a function of consciousness. *Behavioral and Brain Sciences* 18(2): 227–247.

Block, N. (2002) Concepts of Consciousness. In *Philosophy of mind*, ed. David Chalmers. Oxford University Press.

Block, N. (2007) "Consciousness, accessibility, and the mesh between psychology and neuroscience" , target article forthcoming in *Behavioral and Brain Sciences* 30(4), 481-548.

Block, N. (2011). "Perceptual Consciousness overflows Cognitive Access", *Trends in Cognitive Sciences,* 15(12), 567-575.

Chalmers, D.(1997). Availability: The Cognitive Basis of Experience? In Ned Block, Owen J. Flanagan & Guven Guzeldere (eds.), *The Nature of Consciousness*. Mit Press.

Landman, R., Spekreijse, H. & Lamme, V. A. F. (2003) "Large capacity storage of integrated objects before change blindness." *Vision Research* 43: 149–164.

Papineau, D. (2002) *Thinking about consciousness.* Oxford University Press.

Prinz, J. (forthcoming). Is Attention Necessary and Sufficient for Consciousness? In Christopher Mole, Declan Smithies & Wayne Wu (eds.), *Attention: Philosophical and Psychological Essays*. Oxford University Press.

Sperling, G. (1960) The information available in brief visual presentations. *Psychological Monographs* 74:498 (whole issue).