



Consciousness Made Manifest? Review of *Science and the Riddle of Consciousness* by Jeffrey Foss.

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In this engaging, sometimes witty, quite original book Foss attempts to muster the resources of the philosophy of science to provide a solution to the riddle of consciousness. Though many will find Foss's recommendations—or at least the status of those recommendations as a resolution of the 'hard problem'—unconvincing, *Science and the Riddle of Consciousness* is an energetic, clear and stimulating defence of the prospects for bringing phenomenal consciousness within the fold of the natural sciences.

Foss's concerns and recommendations in this book are primarily methodological rather than either metaphysical or empirical: he does not aim to provide a substantive philosophical or empirical theory of consciousness so much as to show that "[p]hysical science can, in principle, accommodate and explain the phenomena of consciousness just as well as it can accommodate and explain other natural phenomena" (31). The philosophical stance he recommends for the pursuit of this goal is what he calls *metaphysically modest methodological naturalism*.

Foss insists we should preserve, at the outset of the investigation, an attitude of metaphysical neutrality. The scientific investigation of the mind, in Foss's view, is methodologically and temporally prior to metaphysics. His reason for this assertion seems to be the Quinean view that science is the best, albeit defeasible, method we possess for limning the fundamental things and processes of the universe which form the

subject matter of metaphysics. “We must permit our observations of consciousness (as we do our observations of the photon) to shape our metaphysical concepts, rather than the reverse” (30–31). The main moral that Foss draws from this is that *method* is prior to metaphysics: if we have methods for detecting, measuring, predicting and controlling some phenomenon then this trumps any metaphysical considerations that might threaten to muddy these clear scientific waters. And, Foss argues, we have available such scientific methods for the study of consciousness.

Some might feel that to concede these methodological points is already to concede too much—that we run the risk of abandoning our genuine metaphysical puzzlement over phenomenal consciousness simply by stipulation. Nevertheless, even for those who feel such qualms, Foss’s book has interesting things to say. The main line of argument of the book goes as follows.

- 1) Science is a practice of modelling. Rather than, say, structured sets of propositions, the products of science are maps of coordinates in some phase space or other, plus laws which capture the trajectories of systems through time. This view of science is a familiar one, and Foss explains it clearly and compellingly; what is unexpected, though, is not the view itself but what he does with it.
- 2) Given that the scientific enterprise is in the modelling game, “the scientific ontology and metaphysics is *exhaustively and exclusively defined in geometric terms*” (56, emphasis in original). Models are (nothing more than) mappings of certain kinds of space, and hence fundamentally geometric. This, according to Foss’s diagnosis, is the root of the puzzle of consciousness: it seems as if “geometry cannot model the obviously non-geometric sensuous qualia of our everyday experience” (69). However, Foss argues, “even though science must model things *geometrically*, this does not entail that it can only model geometric things, geometric properties, or geometric aspects of reality” (70). Indeed, Foss rejects what he calls the *Pythagorean Intuition*, that science penetrates to the essential intrinsic properties of physical phenomena: science does not do so, and we should not expect it to. “[T]he intrinsic essence of physical things remains dark, mysterious, and unexplained despite the triumphs of science” (94). This is the crux of what Foss calls his metaphysical modesty.
- 3) Perceptual consciousness is also a kind of modelling, in just the same sense that science is modelling. “Scientific models are structures that we create, and that carry information about the world by virtue of the specific details of that structure itself. Perception creates structures for us, neural structures that likewise carry information about the world by virtue of their structural details” (75). Foss calls this the *manifest model* (using the definite article since, for Foss, this model is our common biological inheritance, rather than an optional, culturally inherited model like those of science).
- 4) The science of consciousness, for Foss, consists in *bringing together the manifest model with the scientific model*. That is, we should not expect to *replace* the manifest model with a scientific one—which Foss argues is impossible and undesirable—but to understand how the two models are *complementary* to each other. The notion of complementarity is clearly central for Foss, but it is not always

completely clear what he has in mind by it. There seem to be at least two key aspects. First, we need to include the sensory experiences of the observer in the scientific model; once qualia are items in the scientific model then they are explained—“[f]or something to be explained is for it to be included in an explanatory model” (104). Secondly, Foss makes the distinct point that “[t]he goal of the science of consciousness is to scientifically model the manifest model” (155).

- 5) All models need a key—without some way of connecting the elements of the model to reality they are maps that cannot be used; indeed, they are not maps at all but only potential maps. The reason the manifest model cannot be jettisoned, according to Foss, is that it ultimately provides the key for all the scientific models. These models, for example, use units of length—but we cannot understand the notion of a nanometre without first knowing what a metre is, and we come to know *this*, roughly, from our experience of metre-long things. The empiricism of science, in other words, comes from the fact that scientific models must ultimately be keyed to the manifest model.
- 6) What keys the manifest model? The manifest model is inherently self-centered. “Manifest space charts the positions of things relative to me and my interests. Manifest sensations are mapped directly onto my interests, as good or bad, pleasant or painful. Thus the manifest model does not require interpretation in order to be significant: it is self-keyed” (117).
- 7) Finally, does the manifest model present us with the intrinsic essences of qualia? Not according to Foss, any more than the scientific model presents us with the intrinsic ‘metaphysical nature’ of the physical: rather, the manifest model maps a *space* of colour, shape, taste, temperature and so on and individual qualia are individuated by their place in this map. Foss calls this the “Relativity of Qualia” thesis (124). But this is not, in Foss’s view, any kind of problem for his account: it is not the *function* of natural science to do metaphysics; rather, the proper role for science is modelling. Anything that can be modelled, whether photons or qualia, is fair game for science—and Foss argues that not only is there no principled barrier to the modelling of consciousness but that the mounting empirical evidence shows persuasively that it can be.

Although Foss makes his case with verve and clarity, certain aspects of the position he develops remain either puzzling or potentially vulnerable to objection. I will quickly identify here three potential problem areas:

First, Foss’s notion of the manifest model inhabits philosophical territory that has a long and much-contested history. For example, Foss emphasises that the manifest image involves only the biological contribution to perception, and not cultural influences such as linguistic conceptualisation. But the notion of given or what Foss calls ‘untutored’ perception is a notoriously problematic one, and the relative contributions of nature and nurture to our view of the world are, to say the least, difficult to separate. Furthermore, Foss is committed to the position that the entirety of our untutored consciousness is intentional since, for him, it is modelling—and thus about—the world both inside and outside the skin. This again is a position ripe for controversy.

Second, the central issue of the relation between the manifest and scientific models is one that could benefit from further clarification. “[T]o a first approximation, the relationship between the scientific and the manifest is that of two maps that employ quite different protocols to represent overlapping (rather than identical) terrains” (17), says Foss. But if this is so then, when these models say different things about the same phenomenon, why should we not consider them to be in competition and *replace* one with the other? For example, if our manifest model represents the pail of water as being both warm and cool (since one hand was just in a bowl of cold water and the other just removed from a bowl of hot), surely what we should do is *reject* that representation as falsidical and instead represent the true temperature of the water ‘scientifically’.

Foss will argue that we cannot eliminate the manifest model at pain of divorcing science completely from our experience of the world; but perhaps Foss here fails to distinguish between our sensory states and what they represent. That our science of temperature must ultimately be connected to our experiences of temperature may be right—but this is not to say that we must accept the *model* of temperature that, if Foss is correct, our sensations encode.

Sensory states are to be explained by being included in the scientific model. But the manifest model is not a model *of* those states—it’s a model of the world. Furthermore, since the sensory states *are* to be subsumed into the scientific model, on Foss’s view, and the manifest model is not, the former relation—the one that putatively explains consciousness—cannot be the same as the latter, that between the manifest and scientific models.

Finally, one wants to ask, in what sense is Foss’s position the advertised *solution* to the problem of consciousness? In the end his view comes to this: “If science can model consciousness, then there is no particular problem with consciousness as such. It is just a scientific problem, not a mystery” (95). But, some will feel, this just misses the point: the ‘hard problem’ is not the problem of being able, for all practical purposes, to detect, measure, predict and control consciousness; it is the *metaphysical* puzzle of how that phenomenon which we are modelling can be intrinsically subjective (while other phenomena we might model in exactly the same way, and with similar success, are not). Foss’s success in this book will depend upon the extent to which he is able to dislodge his reader’s habit of formulating the problem in this way.

Foss’s arguments on this score sometimes seem to fluctuate between two positions, one more ambitious but less novel and less plausible, the other less ambitious but fresher and more successfully motivated by his book. The first position, suggested particularly by Foss’s defence of the Relativity of Qualia, is that in fact consciousness has no mysterious, subjective intrinsic essence (and our mistake was to assume that it had): rather, if we can model qualia in the way Foss recommends we will have said all the interesting things there are to say about consciousness. The second, much more novel, position that Foss often seems to be defending is that consciousness may indeed have some intrinsic nature that is not capturable by empirical science ... but that we simply *should not care* that this is so, nor should we ever have expected things to have turned out differently. After all, Foss argues, the natural sciences do not capture the ‘intrinsic nature’ of physical phenomena such as gravity—modelling only their extrinsic effects in a

geometrical phase space—and we think no less of the physical sciences for all that. Why should we expect more from a science of consciousness?

Why should we expect more? Well, one answer to this rhetorical question might be that we have first-personal *acquaintance* with the intrinsic nature of consciousness. Gravity may have a secret inner nature but we have no idea what it is since all we can detect with our biological and scientific measuring instruments are gravity's extrinsic effects; speculation about its hidden essence might well seem like the kind of shifty, unnecessary metaphysics that Foss 'modestly' sets aside. But the intrinsic nature of pain or lust or the sensation of purple is something of which—uniquely and mysteriously—we *are* directly aware, and thus something that cries out for explanation. If this is so, and if Foss concedes that such explanation cannot in principle be given by science, but perhaps only by 'metaphysics,' then not only might those of a more dualistic bent feel unconvinced by his naturalizing conclusions—they may come to think that Foss's emphasis on a modelling view of science actually *supports* their anti-physical predilections.