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EPIPHENOMENAL QUALIA

By Frank Jackson

It is undeniable that the physical, chemical and biological sciences have provided a great deal of information about the world we live in and about ourselves. I will use the label 'physical information' for this kind of information, and also for information that automatically comes along with it. For example, if a medical scientist tells me enough about the processes that go on in my nervous system, and about how they relate to happenings in the world around me, to what has happened in the past and is likely to happen in the future, to what happens to other similar and dissimilar organisms, and the like, he or she tells me — if I am clever enough to fit it together appropriately — about what is often called the functional role of those states in me (and in organisms in general in similar cases). This information, and its kin, I also label 'physical'.

I do not mean these sketchy remarks to constitute a definition of 'physical information', and of the correlative notions of physical property, process, and so on, but to indicate what I have in mind here. It is well known that there are problems with giving a precise definition of these notions, and so of the thesis of Physicalism that all (correct) information is physical information.[1] But — unlike some — I take the question of definition to cut across the central problems I want to discuss in this paper.

I am what is sometimes known as a "qualia freak". I think that there are certain features of the bodily sensations especially, but also of certain perceptual experiences, which no amount of purely physical information includes. Tell me everything physical there is to tell about what is going on in a living brain, the kind of states, their functional role, their relation to what goes on at other times and in other brains, and so on and so forth, and be I as clever as can be in fitting it all together, you won't have told me about the hurtfulness of pains, the itchiness of itches, pangs of jealousy, or about the characteristic experience of tasting a lemon, smelling a rose, hearing a loud noise or seeing the sky.

There are many qualia freaks, and some of them say that their rejection of Physicalism is an unargued intuition.[2] I think that they are being unfair to themselves. They have the following argument. Nothing you could tell of a physical sort captures the smell of a rose, for instance. Therefore, Physicalism is false. By our lights this is a perfectly good argument. It is

[1] See, e.g., D. H. Mellor, "Materialism and Phenomenal Qualities", *Aristotelian Society Supp. Vol.* 47 (1973), 107-19; and J. W. Cornman, *Materialism and Sensations* (New Haven and London, 1971).

[2] Particularly in discussion, but see, e.g., Keith Campbell, *Metaphysics* (Belmont, 1976), p. 67.

obviously not to the point to question its validity, and the premise is intuitively obviously true both to them and to me.

I must, however, admit that it is weak from a polemical point of view. There are, unfortunately for us, many who do not find the premise intuitively obvious. The task then is to present an argument whose premises are obvious to all, or at least to as many as possible. This I try to do in §I with what I will call "the Knowledge argument". In §II I contrast the Knowledge argument with the Modal argument and in §III with the "What is it like to be" argument. In §IV I tackle the question of the causal role of qualia. The major factor in stopping people from admitting qualia is the belief that they would have to be given a causal role with respect to the physical world and especially the brain;[3] and it is hard to do this without sounding like someone who believes in fairies. I seek in §IV to turn this objection by arguing that the view that qualia are epiphenomenal is a perfectly possible one.

I. The Knowledge Argument for Qualia

People vary considerably in their ability to discriminate colours. Suppose that in an experiment to catalogue this variation Fred is discovered. Fred has better colour vision than anyone else on record; he makes every discrimination that anyone has ever made, and moreover he makes one that we cannot even begin to make. Show him a batch of ripe tomatoes and he sorts them into two roughly equal groups and does so with complete consistency. That is, if you blindfold him, shuffle the tomatoes up, and then remove the blindfold and ask him to sort them out again, he sorts them into exactly the same two groups.

We ask Fred how he does it. He explains that all ripe tomatoes do not look the same colour to him, and in fact that this is true of a great many objects that we classify together as red. He sees two colours where we see one, and he has in consequence developed for his own use two words 'red_1' and 'red_2' to mark the difference. Perhaps he tells us that he has often tried to teach the difference between red_1 and red_2 to his friends but has got nowhere and has concluded that the rest of the world is red_1-red_2 colour-blind — or perhaps he has had partial success with his children, it doesn't matter. In any case he explains to us that it would be quite wrong to think that because 'red' appears in both 'red_1' and 'red_2' that the two colours are shades of the one colour. He only uses the common term 'red' to fit more easily into our restricted usage. To him red_1 and red_2 are as different from each other and all the other colours as yellow is from blue. And his discriminatory behaviour bears this out: he sorts red_1 from red_2 tomatoes with the greatest of ease in a wide variety of viewing circumstances. Moreover, an investigation of the physiological basis of Fred's exceptional ability reveals that Fred's optical system is able to separate out two groups of wave-

[3] See, e.g., D. C. Dennett, "Current Issues in the Philosophy of Mind", *American Philosophical Quarterly*, 15 (1978), 249-61.

lengths in the red spectrum as sharply as we are able to sort out yellow from blue.[4]

I think that we should admit that Fred can see, really see, at least one more colour than we can; red_1 is a different colour from red_2. We are to Fred as a totally red-green colour-blind person is to us. H. G. Wells' story "The Country of the Blind" is about a sighted person in a totally blind community.[5] This person never manages to convince them that he can see, that he has an extra sense. They ridicule this sense as quite inconceivable, and treat his capacity to avoid falling into ditches, to win fights and so on as precisely that capacity and nothing more. We would be making their mistake if we refused to allow that Fred can see one more colour than we can.

What kind of experience does Fred have when he sees red_1 and red_2? What is the new colour or colours like? We would dearly like to know but do not; and it seems that no amount of physical information about Fred's brain and optical system tells us. We find out perhaps that Fred's cones respond differentially to certain light waves in the red section of the spectrum that make no difference to ours (or perhaps he has an extra cone) and that this leads in Fred to a wider range of those brain states responsible for visual discriminatory behaviour. But none of this tells us what we really want to know about his colour experience. There is something about it we don't know. But we know, we may suppose, everything about Fred's body, his behaviour and dispositions to behaviour and about his internal physiology, and everything about his history and relation to others that can be given in physical accounts of persons. We have all the physical information. Therefore, knowing all this is *not* knowing everything about Fred. It follows that Physicalism leaves something out.

To reinforce this conclusion, imagine that as a result of our investigations into the internal workings of Fred we find out how to make everyone's physiology like Fred's in the relevant respects; or perhaps Fred donates his body to science and on his death we are able to transplant his optical system into someone else — again the fine detail doesn't matter. The important point is that such a happening would create enormous interest. People would say, "At last we will know what it is like to see the extra colour, at last we will know how Fred has differed from us in the way he has struggled to tell us about for so long". Then it cannot be that we knew all along all about Fred. But *ex hypothesi* we did know all along everything about Fred that features in the physicalist scheme; hence the physicalist scheme leaves something out.

Put it this way. *After* the operation, we will know *more* about Fred and especially about his colour experiences. But beforehand we had all the physical information we could desire about his body and brain, and indeed

[4] Put this, and similar simplifications below, in terms of Land's theory if you prefer. See, e.g., Edwin H. Land, "Experiments in Color Vision", *Scientific American*, 200 (5 May 1959), 84-99.

[5] H. G. Wells, *The Country of the Blind*

everything that has ever featured in physicalist accounts of mind and consciousness. Hence there is more to know than all that. Hence Physicalism is incomplete.

Fred and the new colour(s) are of course essentially rhetorical devices. The same point can be made with normal people and familiar colours. Mary is a brilliant scientist who is, for whatever reason, forced to investigate the world from a black and white room *via* a black and white television monitor. She specialises in the neurophysiology of vision and acquires, let us suppose, all the physical information there is to obtain about what goes on when we see ripe tomatoes, or the sky, and use terms like 'red', 'blue', and so on. She discovers, for example, just which wave-length combinations from the sky stimulate the retina, and exactly how this produces *via* the central nervous system the contraction of the vocal chords and expulsion of air from the lungs that results in the uttering of the sentence 'The sky is blue'. (It can hardly be denied that it is in principle possible to obtain all this physical information from black and white television, otherwise the Open University would *of necessity* need to use colour television.)

What will happen when Mary is released from her black and white room or is given a colour television monitor? Will she *learn* anything or not? It seems just obvious that she will learn something about the world and our visual experience of it. But then it is inescapable that her previous knowledge was incomplete. But she had *all* the physical information. *Ergo* there is more to have than that, and Physicalism is false.

Clearly the same style of Knowledge argument could be deployed for taste, hearing, the bodily sensations and generally speaking for the various mental states which are said to have (as it is variously put) raw feels, phenomenal features or qualia. The conclusion in each case is that the qualia are left out of the physicalist story. And the polemical strength of the Knowledge argument is that it is so hard to deny the central claim that one can have all the physical information without having all the information there is to have.

II. The Modal Argument

By the Modal Argument I mean an argument of the following style.[6] Sceptics about other minds are not making a mistake in deductive logic, whatever else may be wrong with their position. No amount of physical information about another *logically entails* that he or she is conscious or feels anything at all. Consequently there is a possible world with organisms exactly like us in every physical respect (and remember that includes functional states, physical history, *et al.*) but which differ from us profoundly in that they have no conscious mental life at all. But then what is it that we have and they lack? Not anything physical *ex hypothesi*. In all physical

[6]See, e.g., Keith Campbell, *Body and Mind* (New York, 1970); and Robert Kirk, "Sentience and Behaviour", *Mind*, 83 (1974), 43-60.

regards we and they are exactly alike. Consequently there is more to us than the purely physical. Thus Physicalism is false.[7]

It is sometimes objected that the Modal argument misconceives Physicalism on the ground that that doctrine is advanced as a *contingent* truth.[8] But to say this is only to say that physicalists restrict their claim to *some* possible worlds, including especially ours; and the Modal argument is only directed against this lesser claim. If we in *our* world, let alone beings in any others, have features additional to those of our physical replicas in other possible worlds, then we have non-physical features or qualia.

The trouble rather with the Modal argument is that it rests on a disputable modal intuition. Disputable because it is disputed. Some sincerely deny that there can be physical replicas of us in other possible worlds which nevertheless lack consciousness. Moreover, at least one person who once had the intuition now has doubts.[9]

Head-counting may seem a poor approach to a discussion of the Modal argument. But frequently we can do no better when modal intuitions are in question, and remember our initial goal was to find the argument with the greatest polemical utility.

Of course, *qua* protagonists of the Knowledge argument we may well accept the modal intuition in question; but this will be a *consequence* of our already having an argument to the conclusion that qualia are left out of the physicalist story, not our ground for that conclusion. Moreover, the matter is complicated by the possibility that the connection between matters physical and qualia is like that sometimes held to obtain between aesthetic qualities and natural ones. Two possible worlds which agree in all "natural" respects (including the experiences of sentient creatures) must agree in all aesthetic qualities also, but it is plausibly held that the aesthetic qualities cannot be reduced to the natural.

III. The "What is it like to be" Argument

In "What is it like to be a bat?" Thomas Nagel argues that no amount of physical information can tell us what it is like to be a bat, and indeed that we, human beings, cannot imagine what it is like to be a bat.[10] His

[7]I have presented the argument in an inter-world rather than the more usual intra-world fashion to avoid inessential complications to do with supervenience, causal anomalies and the like.

[8]See, e.g., W. G. Lycan, "A New Lilliputian Argument Against Machine Functionalism", *Philosophical Studies*, 35 (1979), 279-87, p. 280; and Don Locke, "Zombies, Schizophrenics and Purely Physical Objects", *Mind*, 85 (1976), 97-9.

[9]See R. Kirk, "From Physical Explicability to Full-Blooded Materialism", *The Philosophical Quarterly*, 29 (1979), 229-37. See also the arguments against the modal intuition in, e.g., Sydney Shoemaker, "Functionalism and Qualia", *Philosophical Studies*, 27 (1975), 291-315.

[10]*The Philosophical Review*, 83 (1974), 435-50. Two things need to be said about this article. One is that, despite my dissociations to come, I am much indebted to it. The other is that the emphasis changes through the article, and by the end Nagel is objecting not so much to Physicalism as to all extant theories of mind for ignoring points of view, including those that admit (irreducible) qualia.

reason is that what this is like can only be understood from a bat's point of view, which is not our point of view and is not something capturable in physical terms which are essentially terms understandable equally from many points of view.

It is important to distinguish this argument from the Knowledge argument. When I complained that all the physical knowledge about Fred was not enough to tell us what his special colour experience was like, I was not complaining that we weren't finding out what it is like to *be* Fred. I was complaining that there is something *about* his experience, a property of it, of which we were left ignorant. And if and when we come to know what this property is we still will not know what it is like to *be* Fred, but we will know more *about* him. No amount of knowledge about Fred, be it physical or not, amounts to knowledge "from the inside" concerning Fred. We are not Fred. There is thus a whole set of items of knowledge expressed by forms of words like 'that it is *I myself* who is . . .' which Fred has and we simply cannot have because we are not him.[11]

When Fred sees the colour he alone can see, one thing he knows is the way his experience of it differs from his experience of seeing red and so on, *another* is that he himself is seeing it. Physicalist and qualia freaks alike should acknowledge that no amount of information of whatever kind that *others* have *about* Fred amounts to knowledge of the second. My complaint though concerned the first and was that the special quality of his experience is certainly a fact about it, and one which Physicalism leaves out because no amount of physical information told us what it is.

Nagel speaks as if the problem he is raising is one of extrapolating from knowledge of one experience to another, of imagining what an unfamiliar experience would be like on the basis of familiar ones. In terms of Hume's example, from knowledge of some shades of blue we can work out what it would be like to see other shades of blue. Nagel argues that the trouble with bats *et al.* is that they are too unlike us. It is hard to see an objection to Physicalism here. Physicalism makes no special claims about the imaginative or extrapolative powers of human beings, and it is hard to see why it need do so.[12]

Anyway, our Knowledge argument makes no assumptions on this point. If Physicalism were true, enough physical information about Fred would obviate any need to extrapolate or to perform special feats of imagination or understanding in order to know all about his special colour experience. *The information would already be in our possession.* But it clearly isn't. That was the nub of the argument.

[11]Knowledge *de se* in the terms of David Lewis, "Attitudes De Dicto and De Se", *The Philosophical Review*, 88 (1979), 513-43.

[12]See Laurence Nemirow's comments on "What is it . . ." in his review of T. Nagel, *Mortal Questions*, in *The Philosophical Review*, 89 (1980), 473-7. I am indebted here in particular to a discussion with David Lewis.

IV. The Bogey of Epiphenomenalism

Is there any really *good* reason for refusing to countenance the idea that qualia are causally impotent with respect to the physical world? I will argue for the answer no, but in doing this I will say nothing about two views associated with the classical epiphenomenalist position. The first is that mental *states* are inefficacious with respect to the physical world. All I will be concerned to defend is that it is possible to hold that certain *properties* of certain mental states, namely those I've called qualia, are such that their possession or absence makes no difference to the physical world. The second is that the mental is *totally* causally inefficacious. For all I will say it may be that you have to hold that the instantiation of *qualia* makes a difference to *other mental states* though not to anything physical. Indeed general considerations to do with how you could come to be aware of the instantiation of qualia suggest such a position.[13]

Three reasons are standardly given for holding that a quale like the hurtfulness of a pain must be causally efficacious in the physical world, and so, for instance, that its instantiation must sometimes make a difference to what happens in the brain. None, I will argue, has any real force. (I am much indebted to Alec Hyslop and John Lucas for convincing me of this.)

(i) It is supposed to be just obvious that the hurtfulness of pain is partly responsible for the subject seeking to avoid pain, saying 'It hurts' and so on. But, to reverse Hume, anything can fail to cause anything. No matter how often B follows A, and no matter how initially obvious the causality of the connection seems, the hypothesis that A causes B can be overturned by an over-arching theory which shows the two as distinct effects of a common underlying causal process.

To the untutored the image on the screen of Lee Marvin's fist moving from left to right immediately followed by the image of John Wayne's head moving in the same general direction looks as causal as anything.[14] And of course throughout countless Westerns images similar to the first are followed by images similar to the second. All this counts for precisely nothing when we know the over-arching theory concerning how the relevant images are both effects of an underlying causal process involving the projector and the film. The epiphenomenalist can say exactly the same about the connection between, for example, hurtfulness and behaviour. It is simply a consequence of the fact that certain happenings in the brain cause both.

(ii) The second objection relates to Darwin's Theory of Evolution. According to natural selection the traits that evolve over time are those conducive to physical survival. We may assume that qualia evolved over time — we have them, the earliest forms of life do not — and so we should

[13]See my review of K. Campbell, *Body and Mind*, in *Australasian Journal of Philosophy*, 50 (1972), 77-80.

[14]Cf. Jean Piaget, "The Child's Conception of Physical Causality", reprinted in *The Essential Piaget* (London, 1977).

expect qualia to be conducive to survival. The objection is that they could hardly help us to survive if they do nothing to the physical world.

The appeal of this argument is undeniable, but there is a good reply to it. Polar bears have particularly thick, warm coats. The Theory of Evolution explains this (we suppose) by pointing out that having a thick, warm coat is conducive to survival in the Arctic. But having a thick coat goes along with having a heavy coat, and having a heavy coat is *not* conducive to survival. It slows the animal down.

Does this mean that we have refuted Darwin because we have found an evolved trait — having a heavy coat — which is not conducive to survival? Clearly not. Having a heavy coat is an unavoidable concomitant of having a warm coat (in the context, modern insulation was not available), and the advantages for survival of having a warm coat outweighed the disadvantages of having a heavy one. The point is that all we can extract from Darwin's theory is that we should expect any evolved characteristic to be *either* conducive to survival *or* a by-product of one that is so conducive. The epiphenomenalist holds that qualia fall into the latter category. They are a by-product of certain brain processes that are highly conducive to survival.

(iii) The third objection is based on a point about how we come to know about other minds. We know about other minds by knowing about other behaviour, at least in part. The nature of the inference is a matter of some controversy, but it is not a matter of controversy that it proceeds from behaviour. That is why we think that stones do not feel and dogs do feel. But, runs the objection, how can a person's behaviour provide any reason for believing he has qualia like mine, or indeed any qualia at all, unless this behaviour can be regarded as the *outcome* of the qualia. Man Friday's footprint was evidence of Man Friday because footprints are causal outcomes of feet attached to people. And an epiphenomenalist cannot regard behaviour, or indeed anything physical, as an outcome of qualia.

But consider my reading in *The Times* that Spurs won. This provides excellent evidence that *The Telegraph* has also reported that Spurs won, despite the fact that (I trust) *The Telegraph* does not get the results from *The Times*. They each send their own reporters to the game. *The Telegraph*'s report is in no sense an outcome of *The Times'*, but the latter provides good evidence for the former nevertheless.

The reasoning involved can be reconstructed thus. I read in *The Times* that Spurs won. This gives me reason to think that Spurs won because I know that Spurs' winning is the most likely candidate to be what caused the report in *The Times*. But I also know that Spurs' winning would have had many effects, including almost certainly a report in *The Telegraph*.

I am arguing from one effect back to its cause and out again to another effect. The fact that neither effect causes the other is irrelevant. Now the epiphenomenalist allows that qualia are effects of what goes on in the brain. Qualia cause nothing physical but are caused by something physical. Hence

the epiphenomenalist can argue from the behaviour of others to the qualia of others by arguing from the behaviour of others back to its causes in the brains of others and out again to their qualia.

You may well feel for one reason or another that this is a more dubious chain of reasoning than its model in the case of newspaper reports. You are right. The problem of other minds is a major philosophical problem, the problem of other newspaper reports is not. But there is no special problem of Epiphenomenalism as opposed to, say, Interactionism here.

There is a very understandable response to the three replies I have just made. "All right, there is no knockdown refutation of the existence of epiphenomenal qualia. But the fact remains that they are an excrescence. They *do* nothing, they *explain* nothing, they serve merely to soothe the intuitions of dualists, and it is left a total mystery how they fit into the world view of science. In short we do not and cannot understand the how and why of them."

This is perfectly true; but is no objection to qualia, for it rests on an overly optimistic view of the human animal, and its powers. We are the products of Evolution. We understand and sense what we need to understand and sense in order to survive. Epiphenomenal qualia are totally irrelevant to survival. At no stage of our evolution did natural selection favour those who could make sense of how they are caused and the laws governing them, or in fact why they exist at all. And that is why we can't.

It is not sufficiently appreciated that Physicalism is an extremely optimistic view of our powers. If it is true, we have, in very broad outline admittedly, a grasp of our place in the scheme of things. Certain matters of sheer complexity defeat us — there are an awful lot of neurons — but in principle we have it all. But consider the antecedent probability that everything in the Universe be of a kind that is relevant in some way or other to the survival of *homo sapiens*. It is very low surely. But then one must admit that it is very likely that there is a part of the whole scheme of things, maybe a big part, which no amount of evolution will ever bring us near to knowledge about or understanding. For the simple reason that such knowledge and understanding is irrelevant to survival.

Physicalists typically emphasise that we are a part of nature on their view, which is fair enough. But if we are a part of nature, we are as nature has left us after however many years of evolution it is, and each step in that evolutionary progression has been a matter of chance constrained just by the need to preserve or increase survival value. The wonder is that we understand as much as we do, and there is no wonder that there should be matters which fall quite outside our comprehension. Perhaps exactly how epiphenomenal qualia fit into the scheme of things is one such.

This may seem an unduly pessimistic view of our capacity to articulate a truly comprehensive picture of our world and our place in it. But suppose we discovered living on the bottom of the deepest oceans a sort of sea slug

which manifested intelligence. Perhaps survival in the conditions required rational powers. Despite their intelligence, these sea slugs have only a very restricted conception of the world by comparison with ours, the explanation for this being the nature of their immediate environment. Nevertheless they have developed sciences which work surprisingly well in these restricted terms. They also have philosophers, called slugists. Some call themselves tough-minded slugists, others confess to being soft-minded slugists.

The tough-minded slugists hold that the restricted terms (or ones pretty like them which may be introduced as their sciences progress) suffice in principle to describe everything without remainder. These tough-minded slugists admit in moments of weakness to a feeling that their theory leaves something out. They resist this feeling and their opponents, the soft-minded slugists, by pointing out — absolutely correctly — that no slugist has ever succeeded in spelling out how this mysterious residue fits into the highly successful view that their sciences have and are developing of how their world works.

Our sea slugs don't exist, but they might. And there might also exist super beings which stand to us as we stand to the sea slugs. We cannot adopt the perspective of these super beings, because we are not them, but the possibility of such a perspective is, I think, an antidote to excessive optimism.[15]

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[15]I am indebted to Robert Pargetter for a number of comments and, despite his dissent, to §IV of Paul E. Meehl, "The Compleat Autocerebroscopist" in *Mind, Matter, and Method*, ed. Paul Feyerabend and Grover Maxwell (Minneapolis, 1966).

COMMENTS AND CRITICISM

Frank Jackson, J. Phil. 83 (1986)

WHAT MARY DIDN'T KNOW*

MARY is confined to a black-and-white room, is educated through black-and-white books and through lectures relayed on black-and-white television. In this way she learns everything there is to know about the physical nature of the world. She knows all the physical facts about us and our environment, in a wide sense of 'physical' which includes everything in *completed* physics, chemistry, and neurophysiology, and all there is to know about the causal and relational facts consequent upon all this, including of course functional roles. If physicalism is true, she knows all there is to know. For to suppose otherwise is to suppose that there is more to know than every physical fact, and that is just what physicalism denies.

Physicalism is not the noncontroversial thesis that the actual world is largely physical, but the challenging thesis that it is entirely physical. This is why physicalists must hold that complete physical knowledge is complete knowledge simpliciter. For suppose it is not complete: then our world must differ from a world, $W(P)$, for which it is complete, and the difference must be in nonphysical facts; for our world and $W(P)$ agree in all matters physical. Hence, physicalism would be false at our world [though contingently so, for it would be true at $W(P)$].[1]

It seems, however, that Mary does not know all there is to know. For when she is let out of the black-and-white room or given a color television, she will learn what it is like to see something red, say. This is rightly described as *learning*—she will not say "ho, hum." Hence, physicalism is false. This is the knowledge argument against physicalism in one of its manifestations.[2] This note is a reply to three objections to it mounted by Paul M. Churchland.†

* I am much indebted to discussions with David Lewis and with Robert Pargetter.

[1] The claim here is not that, if physicalism is true, only what is expressed in explicitly physical language is an item of knowledge. It is that, if physicalism is true, then if you know everything expressed or expressible in explicitly physical language, you know everything. *Pace* Terence Horgan, "Jackson on Physical Information and Qualia," *Philosophical Quarterly*, XXXIV, 135 (April 1984): 147–152.

[2] Namely, that in my "Epiphenomenal Qualia," *ibid.*, XXXII, 127 (April 1982): 127–136. See also Thomas Nagel, "What Is It Like to Be a Bat?", *Philosophical Review*, LXXXIII, 4 (October 1974): 435–450, and Howard Robinson, *Matter and Sense* (New York: Cambridge, 1982).

† "Reduction, Qualia, and the Direct Introspection of Brain States," this JOURNAL, LXXXII, 1 (January 1985): 8–28. Unless otherwise stated, future page references are to this paper.

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I. THREE CLARIFICATIONS

The knowledge argument does not rest on the dubious claim that logically you cannot imagine what sensing red is like unless you have sensed red. Powers of imagination are not to the point. The contention about Mary is not that, despite her fantastic grasp of neurophysiology and everything else physical, she *could not imagine* what it is like to sense red; it is that, as a matter of fact, she *would not know*. But if physicalism is true, she would know; and no great powers of imagination would be called for. Imagination is a faculty that those who *lack* knowledge need to fall back on.

Secondly, the intensionality of knowledge is not to the point. The argument does not rest on assuming falsely that, if S knows that a is F and if $a = b$, then S knows that b is F. It is concerned with the nature of Mary's total body of knowledge before she is released: is it complete, or do some facts escape it? What is to the point is that S may know that a is F and *know* that $a = b$, yet arguably not know that b is F, by virtue of not being sufficiently logically alert to follow the consequences through. If Mary's lack of knowledge were at all like this, there would be no threat to physicalism in it. But it is very hard to believe that her lack of knowledge could be remedied merely by her explicitly following through enough logical consequences of her vast physical knowledge. Endowing her with great logical acumen and persistence is not in itself enough to fill in the gaps in her knowledge. On being let out, she will not say "I could have worked all this out before by making some more purely logical inferences."

Thirdly, the knowledge Mary lacked which is of particular point for the knowledge argument against physicalism is *knowledge about the experiences of others*, not about her own. When she is let out, she has new experiences, color experiences she has never had before. It is not, therefore, an objection to physicalism that she learns *something* on being let out. Before she was let out, she could not have known facts about her experience of red, for there were no such facts to know. That physicalist and nonphysicalist alike can agree on. After she is let out, things change; and physicalism can happily admit that she learns this; after all, some physical things will change, for instance, her brain states and their functional roles. The trouble for physicalism is that, after Mary sees her first ripe tomato, she will realize how impoverished her conception of the mental life of *others* has been *all along*. She will realize that there was, all the time she was carrying out her laborious investigations into the neurophysiologies of others and into the functional roles of their internal states, something about these people she was quite unaware of. All along their experiences (or many of them, those got from tomatoes, the

sky, . . .) had a feature conspicuous to them but until now hidden from her (in fact, not in logic). But she knew all the physical facts about them all along; hence, what she did not know until her release is not a physical fact about their experiences. But it is a fact about them. That is the trouble for physicalism.

II. CHURCHLAND'S THREE OBJECTIONS

(i) Churchland's first objection is that the knowledge argument contains a defect that "is simplicity itself" (23). The argument equivocates on the sense of 'knows about'. How so? Churchland suggests that the following is "a conveniently tightened version" of the knowledge argument:

(1) Mary knows everything there is to know about brain states and their properties.
(2) It is not the case that Mary knows everything there is to know about sensations and their properties.

Therefore, by Leibniz's law,

(3) Sensations and their properties ≠ brain states and their properties (23).

Churchland observes, plausibly enough, that the type or kind of knowledge involved in premise 1 is distinct from the kind of knowledge involved in premise 2. We might follow his lead and tag the first 'knowledge by description', and the second 'knowledge by acquaintance'; but, whatever the tags, he is right that the displayed argument involves a highly dubious use of Leibniz's law.

My reply is that the displayed argument may be convenient, but it is not accurate. It is not the knowledge argument. Take, for instance, premise 1. The whole thrust of the knowledge argument is that Mary (before her release) does *not* know everything there is to know about brain states and their properties, because she does not know about certain qualia associated with them. What is complete, according to the argument, is her knowledge of matters physical. A convenient and accurate way of displaying the argument is:

(1)′ Mary (before her release) knows everything physical there is to know about other people.
(2)′ Mary (before her release) does not know everything there is to know about other people (because she *learns* something about them on her release).

Therefore,

(3)′ There are truths about other people (and herself) which escape the physicalist story.

What is immediately to the point is not the kind, manner, or type of knowledge Mary has, but *what* she knows. What she knows be-

forehand is ex hypothesi everything physical there is to know, but is it everything there is to know? That is the crucial question.

There is, though, a relevant challenge involving questions about kinds of knowledge. It concerns the *support* for premise 2′. The case for premise 2′ is that Mary learns something on her release, she acquires knowledge, and that entails that her knowledge beforehand (*what* she knew, never mind whether by description, acquaintance, or whatever) was incomplete. The challenge, mounted by David Lewis and Laurence Nemirow, is that on her release Mary does *not* learn something or acquire knowledge in the relevant sense. What Mary acquires when she is released is a certain representational or imaginative ability; it is knowledge how rather than knowledge that. Hence, a physicalist can admit that Mary acquires something very significant of a knowledge kind—which can hardly be denied—without admitting that this shows that her earlier factual knowledge is defective. She knew all *that* there was to know about the experiences of others beforehand, but lacked an ability until after her release.[3]

Now it is certainly true that Mary will acquire abilities of various kinds after her release. She will, for instance, be able to imagine what seeing red is like, be able to remember what it is like, and be able to understand why her friends regarded her as so deprived (something which, until her release, had always mystified her). But is it plausible that that is *all* she will acquire? Suppose she received a lecture on skepticism about other minds while she was incarcerated. On her release she sees a ripe tomato in normal conditions, and so has a sensation of red. Her first reaction is to say that she now knows more about the kind of experiences others have when looking at ripe tomatoes. She then remembers the lecture and starts to worry. Does she really know more about what their experiences are like, or is she indulging in a wild generalization from one case? In the end she decides she does know, and that skepticism is mistaken (even if, like so many of us, she is not sure how to demonstrate its errors). What was she to-ing and fro-ing about—her abilities? Surely not; her representational abilities were a known constant throughout. What else then was she agonizing about than whether or not she had gained factual knowledge of others? There would be nothing to agonize about if ability was *all* she acquired on her release.

[3] See Laurence Nemirow, review of Thomas Nagel, *Mortal Questions*, *Philosophical Review*, LXXXIX, 3 (July 1980): 473–477, and David Lewis, "Postscript to 'Mad Pain and Martian Pain'," *Philosophical Papers*, vol. I (New York: Oxford, 1983). Churchland mentions both Nemirow and Lewis, and it may be that he intended his objection to be essentially the one I have just given. However, he says quite explicitly (bottom of p. 23) that his objection does not need an "ability" analysis of the relevant knowledge.

I grant that I have no *proof* that Mary acquires on her release, as well as abilities, factual knowledge about the experiences of others —and not just because I have no disproof of skepticism. My claim is that the knowledge argument is a valid argument from highly plausible, though admittedly not demonstrable, premises to the conclusion that physicalism is false. And that, after all, is about as good an objection as one could expect in this area of philosophy.

(ii) Churchland's second objection (24/5) is that there must be something wrong with the argument, for it proves too much. Suppose Mary received a special series of lectures over her black-and-white television from a full-blown dualist, explaining the "laws" governing the behavior of "ectoplasm" and telling her about qualia. This would not affect the plausibility of the claim that on her release she learns something. So if the argument works against physicalism, it works against dualism too.

My reply is that lectures about qualia over black-and-white television do not tell Mary all there is to know about qualia. They may tell her some things about qualia, for instance, that they do not appear in the physicalist's story, and that the quale we use 'yellow' for is nearly as different from the one we use 'blue' for as is white from black. But why should it be supposed that they tell her everything about qualia? On the other hand, it is plausible that lectures over black-and-white television might in principle tell Mary everything in the physicalist's story. You do not need color television to learn physics or functionalist psychology. To obtain a good argument against dualism (attribute dualism; ectoplasm is a bit of fun), the premise in the knowledge argument that Mary has the full story according to physicalism before her release, has to be replaced by a premise that she has the full story according to dualism. The former is plausible; the latter is not. Hence, there is no "parity of reasons" trouble for dualists who use the knowledge argument.

(iii) Churchland's third objection is that the knowledge argument claims "that Mary could not even *imagine* what the relevant experience would be like, despite her exhaustive neuroscientific knowledge, and hence must still be missing certain crucial information" (25), a claim he goes on to argue against.

But, as we emphasized earlier, the knowledge argument claims that Mary would not know what the relevant experience is like. What she could imagine is another matter. If her knowledge is defective, despite being all there is to know according to physicalism, then physicalism is false, whatever her powers of imagination.

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