

Why Panpsychism doesn't Help Us Explain Consciousness

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ABSTRACT

This paper starts from the assumption that panpsychism is counterintuitive and metaphysically demanding. A number of philosophers, whilst not denying these negative aspects of the view, think that panpsychism has in its favour that it offers a good explanation of consciousness. In opposition to this, the paper argues that panpsychism cannot help us to explain consciousness, at least not the kind of consciousness we have pre-theoretical reason to believe in.

Introduction

Panpsychism is the view that the ultimate constituents of physical reality, or as I shall call them *physical ultimates*, instantiate phenomenal properties. According to panpsychism there is something that it is like to be a physical ultimate. I'm going to take it as read that this view is extremely counterintuitive and metaphysically demanding – indeed even its proponents tend to admit this – and that we ought not to accept it unless it has some significant theoretical advantage to outweigh these negative features. But a number of philosophers, notably Galen Strawson (2006) and David Chalmers (1996, 2002b),¹ think that we should take this view seriously because it offers a good explanation – in the case of Galen Strawson he takes it to be the only explanation – of phenomenal consciousness.

One might agree that panpsychism offers a good explanation of consciousness, but think that the view is just so counterintuitive and so metaphysically demanding that it's just not worth investing in. Delicate weighing of theoretical virtues and vices may come into play here. In this paper I will argue for something much stronger. I will argue that no such weighing need be done because panpsychism offers us no help at all in explaining consciousness.²

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¹ Chalmers takes panpsychism to be one of a number of plausible solutions to the hard problem of consciousness, which he lists in his 2002b.

² I am not attacking panpsychism as such, although as I said I am going to assume from the outset that the view is very counterintuitive and metaphysically demanding and so ought to be rejected unless it has some significant theoretical advantage. But perhaps there are theoretical advantages to panpsychism which have nothing to do with consciousness; perhaps one might think that panpsychism helps us make sense of libertarian free will. What I am attacking here is the view that the need to explain consciousness gives one any reason to be a panpsychist.

What kind of consciousness do we need to explain?

Panpsychism is the view that physical ultimates are conscious. One might think that this view, by its very definition, accounts for the existence of consciousness. Whilst it is of course true that panpsychism gives an account of the presence of consciousness in reality, in the sense that it supposes that physical ultimates are conscious, what we require out of a theory of consciousness is not just a theory that explains the presence of *any old conscious experience* in our world. What we want explained is *our* conscious experience, the conscious experience that corresponds to humans and other organisms.

What do I mean by conscious experience corresponding to organisms? I simply mean the conscious states pre-theoretical common sense attributes to organisms on the basis of our interactions with them. It is the kind of conscious experience that mirrors the overall behavioural functioning of the organism. I see Peter screaming with a knife in his side, and on the basis of this I am led to believe that Peter feels pain. I see Clare successfully negotiating a three-dimensional world with her eyes, and on the basis of this I am led to believe that Clare has a visual experience of the world with which she interacts. Even if the panpsychist is right that Clare's physical ultimates are conscious, the kind of conscious experience had by Clare's ultimates will presumably be qualitatively very different to the kind of conscious experience pre-theoretical common sense attributes to Clare on the basis of our everyday interactions with her (although later I will consider the rather implausible hypothesis that an ultimate might have the kind of conscious experience we attribute to organisms on the basis of our interactions with them).

It is this kind of conscious experience, the conscious experience that corresponds to organisms, the kind of conscious experience that in our own case we are immediately acquainted with, that we want a theory of consciousness to explain. This is because this is the only kind of conscious experience that we have pre-theoretical reason to believe in. I will call the kind of conscious experience that corresponds to organisms 'o-experience'. From now on I will take it that to explain consciousness is to explain o-experience.

It is worth noting that although o-experience corresponds to the organism in the sense I have tried to explicate, it does not need to be, at least not directly, instantiated by the whole organism. Indeed most physicalist accounts of consciousness take o-experience to be instantiated by the whole organism only in virtue of its being instantiated by the organism's brain.³

³ In defining 'o-experience', I do not mean to rule out, by definition, that o-experience might be had by physical ultimates, although I will argue in the appendix that this is a rather implausible option. O-experience is just that conscious experience which common sense attributes to organisms on the basis of our interactions with them.

Why kind of explanation?

What is meant by an explanation of o-experience, and why is one called for? The kind of explanation of o-experience I have in mind, the one which philosophers such as Strawson and Chalmers think panpsychism can help with, is one which offers a solution to the so called 'hard problem' of consciousness (Chalmers 1995). The hard problem of consciousness begins with the difficulty of making sense of the supervenience of o-experience on the physical facts. A standard argument that o-experience does not supervene on the physical is something like the following:

1. The physical facts do not a priori entail the existence of o-experience.⁴
2. If the physical facts do not a priori entail the existence of o-experience, then o-experience does not supervene on the physical facts.

Conclusion: O-experience does not supervene on the physical facts.

Or to put the argument more vividly in terms of zombies:

1. Zombie worlds (worlds physically identical to our world but with no conscious experience) are conceivable
2. If zombie worlds are conceivable, then zombie worlds are metaphysically possible

Conclusion: Zombie worlds are metaphysically possible.

To admit that zombie worlds are metaphysically possible just is to deny that consciousness, including o-experience, supervenes on the physical facts.

How can one react to these anti-physicalist arguments? Many philosophers try to solve the hard problem by denying one or both of the premises in the above arguments. Daniel Dennett, for example, denies premise one: he denies that zombie worlds are coherently conceivable (Dennett 1991, see also Ryle 1949; Armstrong 1968; Lewis 1966, 1988, 1994; Harman 1990; Dretske 1995; Rey 1995 for similar physicalist strategies). David Papineau, for example, denies premise two: he accepts that zombie worlds are perfectly conceivable, but argues that the move from their conceivability to their genuine metaphysical possibility is fallacious (Papineau 2002, see also Levine 1983; Loar 1990; Tye 1995; Lycan 1996; Hill 1997; Hill and McLaughlin 1998; Block and Stalnaker 1999; Perry 2001 for similar physicalist strategies). Such philosophers, by accepting the supervenience of o-experience on the physical, hope to accommodate o-experience in reality without adding to the physical facts. We can call such approaches *physicalist solutions* to the hard problem.

⁴ I am here taking facts to be true propositions, and hence the kind of entities the relation of a priori entailment could hold between.

If physicalist solutions to the hard problem work, then a commitment to panpsychism is not required for explaining o-experience; the physical facts alone are sufficient for the existence of o-experience. But a sizable minority of philosophers do accept the conclusion of the above anti-physicalist arguments. If zombie worlds are metaphysically possible, if there are worlds physically identical to our world which lack o-experience, then it follows that there is more to our world than its physical facts (given the fairly uncontroversial assumption that our world contains o-experience). Non-physicalist solutions to the hard problem accept that o-experience does not supervene on the physical facts, and add to our ontology in order to make a supervenience base rich enough to subvene consciousness.

Some examples of non-physicalist solutions to the hard problem are:

Property dualism: The property dualist adds *psycho-physical laws of nature* to the physical facts. The physical facts alone are not sufficient for the existence of o-experience, but the physical facts in conjunction with psycho-physical laws of nature are sufficient for the existence of o-experience.

Substance dualism: The substance dualist adds *mental substances* to the physical facts. Functioning bodies alone are not sufficient for o-experience, but functioning bodies in conjunction with non-physical minds are sufficient for the existence of o-experience.

Panprotopsychism: The panprotopsychist adds *protophenomenal properties* to the physical facts. Protophenomenal properties are ‘hidden’ properties of physical ultimates – hidden in the sense of being empirically indiscernible – which, although not themselves phenomenal properties, in certain combinations come together to constitute conscious experience. The panprotopsychist proposes that the physical facts, together with protophenomenal properties, form a supervenience base rich enough for o-experience (see Russell 1927; Eddington 1928; Feigl 1958, 1967; Maxwell 1979; Lockwood 1989; Strawson 1994, 2002; Chalmers 1996; Griffen 1998; Stoljar 2001).⁵ (Note that that panprotopsychism differs from panpsychism in that the latter but not the former view holds that ultimates are conscious).

If panpsychism is to have any role in explaining o-experience, then it will be in virtue of constituting another such non-physicalist solution to the hard problem. The panpsychist adds *microexperience* to the physical facts, microexperience being conscious experience instantiated by physical ultimates. I take it then the panpsychist who takes her view to be helpful in explaining consciousness holds something like the following:

⁵ Chalmers and Strawson in his 2004 and 2002 (in his 2006 Strawson becomes explicitly committed to panpsychism) are open to both panpsychism and panprotopsychism as possible solutions to the hard problem of consciousness.

The physical facts alone are not sufficient for o-experience, but the physical facts plus microexperience (of the right kind) are sufficient for o-experience.

It is this view, panpsychism as a non-physicalist solution to the hard problem of consciousness, which I shall be attacking in this paper.

Terminological clarifications

It might be wondered what definition of 'physical ultimate' we are working with here, such that a physical ultimate can turn out to have phenomenal properties. There are a number of natural definitions of 'physical ultimate' such that it would not make sense to attribute phenomenal properties to physical ultimates. If one defined 'physical ultimate' such that something is a physical ultimate only if all of its properties are specified by physics, and if one thinks that physics is not in the business of attributing phenomenal properties to objects, then it would not make sense to suppose that a physical ultimate could turn out to have phenomenal properties. Even more straightforwardly, if one defined 'physical ultimate' such that a physical ultimate is a thing with no phenomenal properties, then clearly there would be no sense to the notion of a physical ultimate with phenomenal properties.⁶

But I take it that there are also quite natural, slightly less restrictive, definitions of 'physical ultimate', according to which it is coherent to suppose that physical ultimates might turn out to have phenomenal properties. For example we might understand something to be a physical ultimate only if *some of its properties* are specified by physics, e.g. mass, charge, spin, such that it is left open whether physical ultimates have more properties than those specified by physics. It can be taken in what follows that I am using the term 'physical ultimate', by stipulation, in this way.

There are also terminological worries concerning which facts count as 'the physical facts'. Galen Strawson takes the word 'physical' to be a natural kind term, indeed he calls it 'the ultimate natural kind term' (Strawson 2002). Intrinsic properties of physical ultimates, whatever they turn out to be, count as 'physical properties', because they constitute the intrinsic nature of the objects we pick out with our physical terms. If physical ultimates turn out to instantiate phenomenal properties, then it follows that phenomenal properties count as 'physical properties'. Given these definitions, panpsychism (and panprotopsyichism) now looks like a 'physicalist', rather than a 'non-physicalist', solution to the hard problem.

Strawson berates so called physicalists who use the phrase 'physical facts' to talk only about the kind of facts physics tells us about. Strawson refers to the kind of facts physics tell us about as the 'physicSal facts' (Strawson 2006). But I take

⁶ Note here that I am only discussing necessary conditions for something's being a physical ultimate. If we want to give sufficient conditions, then it will be necessary to include some definition of what an 'ultimate' is, perhaps something like: *an object which lacks proper parts*.

it that these issues are merely terminological. Furthermore, Strawson's definition of 'physical' is potentially misleading: it is not clear what the debate between 'physicalist' and 'non-physicalist' accounts of consciousness is supposed to amount to if panpsychism turns out to be a 'physicalist' account. It can be taken by stipulation that when I talk about the 'physical facts', I mean – in contrast to how Strawson uses the term – the physical facts, i.e. the kind of facts physics tells us about. Physicalist solutions to the hard problem, by my definitions, try to make sense of o-experience supervening on the kind of facts physics tells us about.

Before moving to the main business, I will just give one more point of clarification. There are two closely related views in this area, which we can define as follows:

Panpsychism: *All* physical ultimates instantiate phenomenal properties.

Micropsychism: *Some* physical ultimates instantiate phenomenal properties.

For the sake of simplicity I will focus on panpsychism. However, the criticisms I make against a panpsychist explanation of consciousness could also be applied to a micropsychist explanation of consciousness.

What does it take to constitute a non-physicalist solution to the hard problem?

The view under consideration in this paper then is panpsychism as a non-physicalist solution to the hard problem: the view that o-experience does not supervene on the physical facts alone, but does supervene on the physical facts plus microexperience (of a certain kind). This view might be spelt out in either of the following two ways.

A priori route: The physical facts plus microexperience (of a certain kind) a priori entail o-experience.

A posteriori route: The physical facts plus microexperience (of a certain kind) a posteriori necessitate o-experience.

Most of the paper will be spent considering the a priori route. I will consider the a posteriori route only in the consideration of objections at the end of the paper. I hope my reasons for this choice of emphasis should become clear as the paper goes along.

Therefore, most of this paper will be spent considering, and arguing against, the following view:

The physical facts alone do not a priori entail the existence of o-experience, but the physical facts plus microexperience (of a certain kind) do a priori entail o-experience.

Or to put it another way:

Zombie worlds are conceivable, but physical duplicates of our world with microexperience (of a certain kind) are not conceivable.

If the physical facts plus microexperience do not a priori entail o-experience, then the panpsychist cannot offer a non-physicalist solution to the hard problem of consciousness, at least not via the a priori route.

Defining conceivability and a priori entailment

Conceivability, as I understand the notion, is not a matter of what can be imagined, although what can be imagined may be a useful guide to conceivability. Rather, conceivability is a matter of what cannot be ruled out a priori. We can define the notion in the following way:

A state of affairs *s* is conceivable iff the fact that *s* obtains cannot be ruled out a priori.⁷

We can distinguish between two familiar kinds of conceivability, *prima facie* conceivability and ideal conceivability, in the following way:

Prima facie conceivability: *s* is *prima facie* conceivable iff initial consideration of *s* is not sufficient for ruling out the fact that *s* obtains.

Ideal conceivability: *s* is ideally conceivable iff there is no possible world where a rational thinker rules out the fact that *s* obtains a priori.⁸

To give an example of ideal conceivability, I take it that the state of affairs of there being a million-sided object is ideally conceivable. There is no possible world where a rational thinker, sat in his armchair, works out a priori that there are no million-sided objects. This is just not the kind of thing that can be ruled out a priori.⁹

⁷ Defining conceivability this way is not entirely uncontroversial. Chalmers 2002a calls it 'negative conceivability', and contrasts it with 'positive conceivability', which is defined in terms of what can be positively imagined. However, the notion of positive conceivability is problematic for a number of reasons. Firstly, the relevant notion of 'imagination' is obscure. We are not simply talking about sensory imagination, as this would make too many states of affairs inconceivable, e.g. space being infinite, or there being four-dimensional objects. But nor is it simply thinking a thought involving the proposition, as this would make too many states of affairs conceivable, e.g. the state of affairs of there being a square circle. It is difficult to find a middle way between these two extremes. Secondly, there is certain dialectical advantage in setting things up in terms of negative, rather than positive, conceivability. It is difficult to have an argument with someone over whether or not a certain state of affairs can be imagined. I say I can imagine a zombie, you say you can't. It's difficult to know where we go from there. It is much easier to have an argument over whether a state of affairs is contradictory or incoherent.

⁸ See Chalmers 2002a for this distinction (slightly differently defined).

⁹ Whether or not a state of affairs is ideally conceivable in this sense will be relative to how that state of affairs is described. Let us suppose that Bob's favourite property is the property of being a square circle. Consider the state of affairs of Bob's favourite property being instantiated. This state of affairs, described as 'Bob's favourite property is instantiated', is conceivable: it cannot be ruled out a priori. But the same state of affairs, described as, 'The property of being a square circle is instantiated', is not conceivable: it can be ruled out a priori.

As I will understand them, the notion of ideal conceivability and the notion of a priori entailment are inter-defined notions. A state of affairs *a* a priori entails a state of affairs *b* iff it is not ideally conceivable that *a* obtain and *b* not obtain. This is equivalent to saying that *a* a priori entails *b* iff there is a possible world where a rational thinker works out a priori that it is not the case that: [*a* obtains and *b* does not obtain].

Microexperiential zombies

My aim then is to show that the physical facts plus microexperience do not a priori entail the existence of o-experience. I will try to do this by making use of a new kind of zombie that I came across on a recent expedition into logical space. Regular zombies, creatures that are physically identical to actual organism but which have no conscious experience, are familiar creatures in the consciousness literature. Allow me to introduce *microexperiential zombies*.

A microexperiential zombie is a physical duplicate¹⁰ of an actual organism which is such that:

There is something that it is like to be each of its ultimates.

It does not have *o-experience*.

Let me give you an example of one of my microexperiential zombie twins, call him *my itchy twin*. My itchy twin is a physical duplicate of me such that each of its physical ultimates *feels itchy*; unlike my regular zombie twin my itchy twin instantiates phenomenal properties (at least in the sense that its physical ultimates instantiate phenomenal properties). But my itchy twin has no o-experience. If you stick a knife in him he will scream and run away, but he will not *feel pain*. My itchy twin successfully negotiates a three-dimensional world using his eyes, but he has no *visual experience* of that world.

Whereas I have only one kind of regular zombie twin, I have a very large number of kinds of microexperiential zombie twin, which differ in terms of the phenomenal properties instantiated by their physical ultimates. I have a microexperiential zombie twin whose ultimates feel itchy, one whose ultimates feel pain, one such that each of its ultimates has an experience as of smelling roast beef. I also have a great number of microexperiential zombies whose ultimates instantiate a variety of phenomenal properties, e.g. some feel itchy and some feel pained.

In terms of the notion of a microexperiential zombie we can define the notion of a *microexperiential zombie world*. A microexperiential zombie world is physical duplicate of the actual world such that:

¹⁰ I understand *x* to be a physical duplicate of *y* iff *x* and *y* are qualitatively identical in terms of the physical facts (according to the definition of 'physical facts' I have already given).

Each of the ultimates of the world instantiates phenomenal properties.

There is no o-experience.

Just as there are a great number of kinds of microexperiential zombie, so there are a great number of kinds of microexperiential zombie world. Such worlds differ with regards to the phenomenal properties instantiated by the physical ultimates constituting those worlds.

How I am going to make use of microexperiential zombies

My basic argument, although there will be a number of qualifications along the way, is as follows:

Premise 1: Every microexperiential zombie world (with one exception which I will discuss) is ideally conceivable.

Premise 2: If every microexperiential zombie world is ideally conceivable, then the physical facts plus microexperience (of any kind) do not a priori entail o-experience.

Conclusion: The physical facts plus microexperience (putting aside the one exception I will discuss) do not a priori entail o-experience.

This argument is valid, and premise 2 is analytically true given my definitions. I will focus in what follows on arguing for premise 1. My strategy will be as follows. Firstly, I will argue that *some* microexperiential zombies are *prima facie* conceivable, which I will assume implies that some microexperiential zombie worlds are *prima facie* conceivable. Next I will try to build on this to show that *all* (with one exception which I will discuss) microexperiential zombies are *ideally* conceivable, which I will assume implies that all (putting aside the one exception I will discuss) microexperiential zombie worlds are ideally conceivable.

I will talk a lot about my own microexperiential twins, but I will take it that the arguments here generalise. If I can show for example that all my microexperiential zombie twins are conceivable, then it follows, given that there is nothing special about my own case, that all microexperiential zombies are conceivable. I will assume then that demonstrating that all my microexperiential zombie twins are conceivable is sufficient for demonstrating that all microexperiential zombies are conceivable, which is in turn sufficient for demonstrating that all microexperiential zombie worlds are conceivable.¹¹

¹¹ Note that if all microexperiential worlds are conceivable, then the microphysical facts plus microexperience of any kind does not entail o-experience.

Demonstrating that some microexperiential zombies are prima facie conceivable

I take it that demonstrating that a state of affairs is prima facie conceivable is pretty much a matter of describing the state of affairs in a certain amount of detail, and inviting the reader to agree that there is no obvious contradiction or incoherence in the situation so described. This is what I will try to do now, regarding a small number of states of affairs involving microexperiential zombies.

Consider the existence of what I shall call *my pained twin*. My pained twin is an organism regarding which the following two sets of facts obtain:

My pained twin

Lower-level facts: A physical system, empirically indiscernible from me, but such that each of its physical ultimates feels slight pain.

Higher-level facts: A functional duplicate of me, but without o-experience.

There does not seem any obvious inconsistency in these two sets of facts obtaining with regard to the same organism. Having said that, there are plenty of philosophers who would deny that this state of affairs is coherent. Any philosopher who holds any kind of functionalist analysis of phenomenal concepts will deny that we can conceive of a creature physically identical to me which lacks my o-experience. Presumably such a philosopher will also deny that it is coherent to suppose that physical ultimates have phenomenal properties, given that they are too simple to instantiate the required functional properties.

But of course the panpsychist cannot argue for the incoherence of my pained twin in this way. The panpsychist, or at least the panpsychist I am currently attacking, believes that my regular zombie twin is conceivable (because otherwise there would be no role for microexperience in explaining o-experience: the physical facts alone would be sufficient for o-experience), and so thinks it possible to conceive of a creature functionally identical to me which lacks my o-experience. And obviously, as a panpsychist, she thinks it coherent to attribute phenomenal properties to physical ultimates. So the panpsychist cannot argue against the coherence of my pained twin in the standard way many philosophers would, and it is difficult to see what other resources the panpsychist could appeal to in order to demonstrate the inconceivability of this state of affairs.

The panpsychist might respond in the following way:

Of course your pained twin is conceivable, but that's only because the microexperiential facts you've involved in the conception are so rubbish. If actual organisms were such that their physical ultimates just felt slight pain, then of course they would not enjoy the rich and varied o-experience they actually do enjoy. But given

that actual organisms do in fact enjoy o-experience, we can assume that their microexperience is much richer and more varied than the kind of microexperience your pained twin instantiates.

The trouble is that it is difficult to see what microexperiential facts would be more helpful to the panpsychist. I have spent some time thinking what kind of microexperience would be most helpful to the panpsychist. What follows is what seems to me the best shot the panpsychist has of explaining my o-experience in terms of the microexperience of my physical ultimates.

What the panpsychist ought to do is to take my o-experience as a whole, let us say I am having a unified experience of feeling cold, tired, smelling roast beef etc. He then ought to abstract from this unified experience all the phenomenal characters that characterise it: the phenomenal character associated with feeling cold, that associated with feeling tired, that associated with smelling roast beef etc. (one might reasonably think that these phenomenal characters are themselves characterised by simpler phenomenal characters, but let us just suppose to keep the example simple that these are the simplest phenomenal characters that characterise my o-experience). What the panpsychist does next is to suppose that my physical ultimates (or perhaps those of my ultimates which constitute certain relevant brain functions) each instantiate one of these phenomenal characters, and that together they exemplify all these phenomenal characters.

The trouble is that this kind of microexperience seems just as compatible with the absence of my o-experience as the microexperience instantiated by my pained twin. After all my o-experience is a *different* conscious experience with a different phenomenal character to each of the conscious experiences I am supposing to be had by each of my ultimates in this example. One of my ultimates has an experience as of feeling cold, one has an experience as of feeling tired, one has an experience as of smelling roast beef etc., whilst my o-experience is an experience as of *having a unified experience* of feeling cold, tired and smelling roast beef etc. The existence of a subject having a unified experience of feeling cold and tired and smelling roast beef does not seem to be a priori entailed by the existence of a subject that feels cold, a subject that feels tired, and a subject that smells roast beef.

So I would like to invite the reader to agree with me that the following kind of microexperiential zombie, which I shall call *my fragmented twin*, seems just as conceivable as my pained twin.

My fragmented twin

Lower-level facts: A physical system empirically indiscernible from me, such that certain brain constituting physical ultimates are such that each instantiates one aspect of my actual o-experience, one feels cold, one feels tired, one has an experience as of smelling roast beef etc., and together these ultimates instantiate all aspects of my o-experience.

Higher-level facts: A functional duplicate of me with no o-experience (i.e. no unified conscious experience as of feeling cold, tired and smelling roast beef etc.).

Looking bad . . .

I take it that things are already looking pretty bad for the panpsychist who wants to explain o-experience by supposing that the physical facts plus a certain kind of microexperience a priori entail o-experience. The kind of microexperience that looked to be most helpful in explaining my o-experience in this way looks to be eminently compatible with the absence of my o-experience. The hope of the panpsychist at this point must be that one of the following two things is the case. Firstly, perhaps the panpsychist hopes that if we were only clever enough and thought long and hard enough about my fragmented twin in enough detail, then we would come to see that it is incoherent. Alternately, perhaps the panpsychist hopes that there is some other kind of microexperience out there which is somehow inconsistent with the absence of my o-experience, even though none seems to be forthcoming.

But these hopes just look like blind faith. Given the prima facie conceivability of my fragmented twin, if the panpsychist can give us no positive reason for thinking that my fragmented twin is not ideally conceivable, then we have no reason to think that further reflection will reveal it to be incoherent. Similarly, if the panpsychist can give us no reason to think that there is some form of microexperience out there which is inconsistent with the absence of my o-experience, then, given that none is forthcoming, we have no reason to think there is such a form of microexperience.

So I take it that we all ready have good reason to think that there is no form of microexperience which is incompatible with my o-experience, and so no reason to think that the panpsychist can explain my o-experience by supposing that my ultimates instantiate microexperiential properties which a priori entail the existence of my o-experience. But in order to show conclusively that the physical facts plus microexperience do not a priori entail o-experience, we must show that *all* my microexperiential zombie twins are not only *prima facie* conceivable, but *ideally* conceivable. It is exactly this that I will now try to argue for.¹²

Arguing that all microexperiential zombies are ideally conceivable

My strategy will be as follows. I will suggest a principle. I will argue for this principle on the grounds that it is independently plausible, but also because it explains, and in this way is supported by, the prima facie conceivable situations

¹² My argument here is influenced by William James's 'combination problem' (James 1983).

we have so far considered. The truth of this principle implies that all (with one exception which I will discuss) microexperiential zombies are ideally conceivable.

The principle I wish to advocate concerns subjects of experience. In order to make sense of the principle we must first get a firm grip on what we mean by a subject of experience is. By 'subject of experience' I simply mean a thing that is phenomenally conscious: *a thing such that there is something that it is like to be that thing*. If panpsychism is true then physical ultimates are subjects of experience; according to the panpsychist there is something that it's like to be a physical ultimate.

For any subject of experience, and any period of time during which that subject of experience exists and is experiencing, there is a complete determinate phenomenal character which characterises its experience during that period. We can characterise what it was like to be the subject of my o-experience in the last five minutes by saying that that subject had a unified experience as of being cold, tired, bored, smelling roast beef etc. We can characterise what it is like to be one of the physical ultimate subjects of experience which constitute my pained twin by saying that it feels slight pain.

We can say that for any subject of experience x and any subject of experience y , such that x and y exist and are experiencing during a period of time t , x and y are numerically the same subject of experience only if the complete determinate phenomenal character which characterises x 's experience during t is the same complete determinate phenomenal character which characterises y 's experience during t . If we can completely characterise what it is like to be the subject of my o-experience during time period t by saying that that subject has a unified experience as of being cold, tired, bored, smelling roast beef etc., and we can completely characterise what it is like to be one of my ultimates, call it u , during time period t by saying that it feels cold, then we can infer that the subject of my o-experience is not numerically the same subject of experience as u .¹³

Note well that this is not to say that the subject of my o-experience and u are wholly distinct. By saying that the subject of my o-experience and u are different subjects of experience, I do not mean to exclude the possibility that they are *partially* identical, which could be the case for example if u was a part of the subject of my o-experience (I am going to go on to cast doubt on the coherence of the notion of two subjects being partially identical, but I do not want to rule this out merely by how I define the term 'subject of experience'). I am simply making the point that if the subject of my o-experience and u have experience that can be

¹³ Note that I am giving here only a necessary, not a sufficient, condition for two things being the same subject of experience. I take it that there could be two distinct subjects of experience x and y , such that what it is like to be x during some time period t is exactly the same as what it is like to be y at t .

completely characterised in different ways, then u and the subject of my o -experience are different subjects of experience.

Having explained what I take a subject of experience to be, I will now introduce the principle. I call this principle *No Summing of Subjects*, or NSS for short:

No Summing of Subjects (NSS): It is never the case that the existence of a number (one or more) of subjects of experience with certain phenomenal characters a priori entails the existence of some other subject of experience.

We can get a grip on this principle by contrasting the case of subjects of experience with the case of spatial objects. Let us say that two spatial objects x and y are the same physical object only if they have the same exact location. Just as in the case of my definition of subjects of experience, this definition does not stipulate that two different spatial objects x and y cannot be partially identical with each other, e.g. x may be a part of y whilst having a different exact location to y . Now consider a following parallel principle of NSS for spatial objects:

No Summing of Spatial Objects (NSSO): It is never the case that the existence of a number (one or more) of spatial objects, each with a certain exact location, a priori entails the existence of some other physical object.

NSSO does not seem to be a true principle. There are straightforward cases where the existence of spatial objects, each with certain exact location, entails the existence of a different spatial object. Consider a spatial object o at time t which has proper parts x , y and z , and no other parts. The existence of x , y and z at t , each having the exact location it has at t , entails the existence of o with its exact location.¹⁴

But whilst NSSO is not a true principle, it is plausible to think that its sister principle NNS is true. Subjects of experience do not seem to entail the existence of other subjects of experience in the way that spatial objects entail the existence of other spatial objects. (Remember that my stipulations leave open that two different subjects of experience may be partially identical, and two different spatial objects may be partially identical. If we stipulate that x and y are 'different' spatial objects only if they are wholly distinct, then it doesn't look like the existence of certain spatial objects can entail the existence of a different spatial object).

How do I imagine a panpsychist zombie? First I imagine a regular zombie, with no phenomenal properties. Then I change my conception slightly, and imagine that its physical ultimates instantiate phenomenal properties; in the case of my pained twin I imagine that each of its ultimates feels slightly pained, in the case of my fragmented twin I imagine that each of its ultimates instantiates an aspect of my o -experience.

¹⁴ It is not the case that o has the same exact location as x ; it is not the case that o has the same exact location as y ; it is not the case that o has the same exact location as z .

In doing this I commit myself to a large number of subjects of experience, each instantiating its own conscious experience with its own determinate phenomenal character. When I imagine my pained twin I imagine a large number of pained subjects of experience. When I imagine my fragmented twin I imagine a subject of experience that feels cold, a subject that feels tired, a subject that has an experience as of smelling roast beef etc. But in either case I don't seem to commit myself to the existence of any subjects of experience beyond the basic experiencing ultimates themselves. As NSS states, the existence of a certain number of subjects of experience with certain phenomenal characters does not entail the existence of any other subject of experience.

I offer NSS as something which, upon reflection, is independently plausible, but also as something which explains why, in the cases of *prima facie* conceivability we have considered so far, whatever microexperientiality we plug in, we don't seem to get o-experience out. Consider the following line of reasoning:

1. It is never the case that the existence of a number of experiencing physical ultimates (with whatever kind of experience) a priori entails the existence of any other subject of experience (NSS).
2. No physical ultimate is a subject of experience with o-experience.

Conclusion: It is never the case that the existence of a number of experiencing physical ultimates (with whatever kind of experience) a priori entails the existence of a subject of experience with o-experience.

This line of reasoning explains why both my pained twin and my fragmented twin are *prima facie* conceivable. It is never the case that the existence of a number of subjects of experience entails the existence of any other subject of experience. Given this, whatever subjects of experience we suppose constitute a certain organism, provided they are not subjects of experience with the o-experience of that organism, they will never entail the existence of a subject of experience with the o-experience of that organism.

If this argument is sound, then all microexperiential zombies are ideally conceivable. If NSS is true, then the only way microexperiential facts could entail the existence of o-experience is if one (or more) of the physical ultimates constituting an organism itself instantiated the o-experience of the organism. If we combine this with the fairly natural thought that no physical ultimate instantiates o-experience – this assumption will be defended below in the discussion of my homunculus twin – then it follows that all microexperiential facts are consistent with the absence of o-experience. It follows that all microexperiential zombies are ideally conceivable: a microexperiential zombie just is an organism with microexperience but without o-experience.

The trouble is premise 2 of the above argument is not obviously true, at least if we are talking about possible ultimates. What reason is there to think that there

is no possible world where there are ultimates with o-experience? In the absence of such a reason, even given NSS, there is one microexperiential zombie which is not conceivable. Allow me to introduce *my homunculus twin*:

My homunculus twin

Lower-level facts: A system physically identical to me, such that at least one of its ultimates instantiates my o-experience (i.e. one of my ultimates has my full visual/auditory, pleasure and pain filled experience).

Higher-level facts: A functional duplicate of me which lacks my o-experience.

This state of affairs is clearly incoherent. The lower-level facts specify that the organism has o-experience, the higher-level facts deny this. It does not matter that the o-experience is only instantiated by the organism in virtue of only one of its particles instantiating it. O-experience is defined as experience corresponding to the functional states of the organism, as the kind of experience pre-theoretical common sense ascribes to organisms on the basis of their behaviour. It is no part of the definition of o-experience that it must be directly instantiated by the whole organism. Indeed on most physicalist accounts of consciousness, the o-experience of an organism isn't directly instantiated by the whole organism; rather it is instantiated by the organism in virtue of its being instantiated by the organism's brain.¹⁵

If the panpsychist were to suppose that I instantiated the same microexperience as my homunculus twin, then he would indeed be able to give a successful account of my o-experience. However, I take it this would be a very implausible move to make. Firstly, my o-experience would turn out to be as good as epiphenomenal: the intrinsic properties of one particle of my brain are not going to have much impact on my behaviour. Worse than this, there also looks to be a very weird causal relation going on in the opposite direction.

If one of my physical ultimates instantiates my o-experience, experience which mirrors the functional states of my whole body, then either this is just a massive coincidence, or the functional states of my body are somehow causally impacting on the intrinsic properties of that single particle. That physical ultimate, together with other physical ultimates I am made of, contributes to realising the functional states of my whole body. It looks then like my physical ultimates realise the functional states of my body, and those functional states then somehow impact back on their supervenience base. This is very strange and of dubious coherence. To give an analogy to bring out the weirdness, it is rather like supposing that a

¹⁵ I suppose we would want to say that for a given phenomenal property to be instantiated by an organism, that phenomenal property must be instantiated by at least one of the organism's parts (if substance dualism is true, an organism's non-physical mind is part of the psychophysical whole that is the organism).

single particle in a dog's bladder is affected by the fact that it constitutes a dog rather than a cat.

This strangeness is not lessened if we suppose that more than one of my ultimates instantiates my o-experience. Even if we suppose that each of my physical ultimates individually instantiates my o-experience, it still seems to be the case that the functional states those ultimates come together to realise somehow impact back on the intrinsic properties of the ultimates.

I take it then that this is not a road that the panpsychist wants to go down. But if NSS is true, then my implausible twin is my only microexperiential zombie twin which is conceivable. NSS states that the existence of a number of subjects of experience with certain phenomenal characters never a priori entails the existence of any other subject of experience. Therefore the only way the microexperience of an organism could entail that organism's o-experience is if the microexperience was built into the organism's o-experience; let us call this kind of microexperience *homunculus experience*. The only kind of microexperience which a priori entails o-experience is homunculus experience.

Some objections

I will now develop my case against panpsychist accounts of o-experience by considering various objections that I could imagine the panpsychist raising in objection to my argument.

Objection 1

Microexperiential zombies are only conceivable to us because we have an incomplete understanding of the nature of microexperience. If we had God's conception of microexperience we would be unable to conceive of microexperiential zombies.

I think that this objection could be read in two ways. Firstly, the thought might be that we cannot conceive of the phenomenal characters involved in microexperience. This seems plausible enough. There are plenty of phenomenal characters that we cannot conceive of. We cannot, as has been pointed out before, conceive of what it is like to be a bat. But it is not clear how this helps the panpsychist. My argument above (roughly) was that, if NSS is true, then *whatever* kind of microexperience we plug into an organism's ultimates we're never going to get out o-experience (unless the microexperience is homunculus experience). This argument works, if it works at all, whatever kind of weird and wacky phenomenal characters are involved in the microexperience (so long as there is no homunculus experience).

Alternately, the thought might be that there is more to the nature of a microexperiential property than its phenomenal character. Perhaps a microexperiential property is partly constituted by its phenomenal character, and partly constituted

by some ‘hidden’ bit of the property – hidden in the sense that it is neither introspectable nor empirically discernible. The thought might be that the hidden bits of microexperiential properties, in combination, a priori entail o-experience, or that both aspects of microexperiential properties, in combination, a priori entail o-experience.

This seems like a coherent hypothesis, but the problem is that it is now difficult to see the theoretical advantage of supposing that the phenomenal character bit of microexperiential properties exists. If we are going to invest in hidden consciousness constituting properties, why not suppose that these properties alone, in combination, a priori entail o-experience? We would then have a view which is more economical, in that we don’t have to postulate microexperiential phenomenal characters, and more plausible, in that we don’t have to suppose that physical ultimates are conscious.

Actually, the view we would then have, if we dispense with microexperiential phenomenal characters, is just panprotopsychism. Panprotopsychism, as I described it earlier, is the view that physical ultimates instantiate hidden properties, hidden in the sense of not being empirically discernible, which are not themselves experiential properties, but which, in combination, constitute conscious experience. This is just the view we have here. If the panpsychist is to go down the road suggested by objection 1, then I think she ought just to be a panprotopsychist, and in this way have a view which is more economical and more plausible than panpsychism.

Objection 2

Of course if the microexperiential properties just sit isolated, then they won’t entail o-experience. It is the microexperiential properties united in the special relationship of ‘phenomenal bonding’ which entails o-experience.

In the prima facie conceivable situations I considered in making my case against panpsychism, the microexperiencing physical ultimates combined together to constitute the functional states of the organism. But in terms of their intrinsic microexperiential properties, it is fair to say that these didn’t seem to be having much to do with each other. This is partly because it is difficult to know how to conceive of microexperiential properties being related to each other except by conceiving of the ultimates that instantiate them being related in familiar ways.

However, let us suppose that the state of affairs suggested in objection 2 is coherent: there exists a special relationship, phenomenal bonding, such that, when it relates certain microexperiential properties, it a priori entails o-experience. The trouble is that it is difficult to see the theoretical advantage of supposing that phenomenal bonding relates phenomenal properties, as opposed to bog standard physical properties of the kind physics tells us about. We are investing in a relationship that relates certain properties to create a state of affairs that a priori

entails o-experience. Why ought we to suppose that the properties this relationship relates to form o-experience are phenomenal rather than non-phenomenal?

We have here two hypotheses:

Hypothesis one: phenomenal bonding + microexperiential properties = o-experience.

Hypothesis two: phenomenal bonding + standard physical properties = o-experience.¹⁶

Hypothesis two is more economical than hypothesis one, because it does not suppose the existence of microexperiential properties. It is also more plausible because it does not suppose that physical ultimates are conscious. It seems clear that hypothesis two is what we ought to go for.

Actually, I think hypothesis two should be seen as a variant of panprotopsy-chism. The hidden consciousness constituting properties which panprotopsy-chism postulates are typically understood to be *intrinsic* properties of physical objects. On hypothesis 2, the hidden consciousness constituting property postulated is relational, i.e. being related in the phenomenal bonding relation. Apart from this difference, the view seems to me to be indiscernible from standard forms of panprotopsy-chism. If the panpsychist is going to go down the path suggested in objection 2, then it seems to me that she might as well adopt this variant of panprotopsy-chism, and thus have a view which is more economical and more plausible than panpsychism.

I am not trying to deny that panpsychists can make sense of experiences summing, the worry William James (at one point) had about the view, and a worry I have pressed in other work.¹⁷ I am suggesting that the panpsychist does have a way of a way of getting round this problem. My point is that *the way* the panpsychist gets round the combination problem, i.e. by investing in a phenomenal bonding relation, is open to the non-panpsychist. Given that this option is open to both the panpsychist and the non-panpsychist, it is difficult to see how a commitment to panpsychism is of any benefit here.

¹⁶ Perhaps we might want to claim that the relation involved in hypothesis one and the relation involved in hypothesis two are distinct, given that one relates micro-experiential properties (call this relation 'phenomenal-from-phenomenal bonding'), whilst the other relates standard physical properties (call this the 'phenomenal-from-physical bonding'). We still face essentially the same problem: what is the advantage of investing in the phenomenal-from-phenomenal bonding relation, rather than the phenomenal-from-physical bonding relation? Investing in phenomenal-from-physical bonding is more economical, given that we don't need to postulate micro-experience as well in order to get o-experience. Perhaps if we had a better grip on the phenomenal-from-phenomenal bonding relation than we have on the phenomenal-from-physical relation, this might constitute a point in favour of panpsychism. But I take it that both these relations are equally beyond our ken.

¹⁷ Goff 2006.

Objection 3

You are assuming that the necessary connection between the microexperiential facts and o-experiential facts is metaphysically necessary, when in actual fact it could be contingently naturally necessary. Such a view would be a non-reductive form of panpsychism, but a form of panpsychism nonetheless.

My arguments against panpsychism have involved arguing that all kinds of microexperience (except homunculus experience) are consistent with the absence of o-experience. This is potentially worrying if the relation between the microexperiential properties and o-experience is supposed to be metaphysically necessary. But if the relationship between the microexperiential properties and o-experience is contingent, then it is not surprising that we can conceive of the two apart; we are simply conceiving of those metaphysically possible worlds where the two do come apart.

The trouble with this strategy – and the attentive reader may be starting to detect a theme here – is that, if we are going to invest in ontologically extra psychophysical laws of nature in order to make the micro facts sufficient for o-experience, why not suppose that the micro facts that such laws relate are bog standard physical facts? If we do this then, because we do not have to postulate microexperiential properties, the view we end up with is both more economical and more plausible than the panpsychist alternative. In fact the view we end up with is just regular property dualism. The point is: if the panpsychist is going to go down the road suggested in objection 3, then she might as well be a property dualist.

Objection 4

You are assuming that the o-experiential facts supervene on the microexperiential properties, but perhaps the microexperiential properties come together and change to become the o-experiential properties.

Perhaps the parts of my brain, before they came together to form my brain, had their own individual phenomenal lives. But when they come together to form my brain they lose their individual conscious identities, and somehow morph into o-experience had by the whole brain. I think we can get some imaginative grip on this picture.

The trouble with this strategy is that we might as well just assume that the laws of nature are such that bog standard physical properties, when they come together in special combinations to constitute brains, somehow develop o-experience.

Before the parts of my brain came together to form my brain, they had no phenomenal properties, but when they came together to form my brain, perhaps due to contingent laws of nature, o-experience emerged. What we have now is a standard emergentist picture. However plausible or implausible the standard emergentist picture is, it is made less plausible and less economical by the addition of microexperiential properties.

Objection 5

O-experience supervenes on (certain kinds of) microexperience with metaphysical necessity; (certain kinds of) microexperiential zombies are impossible. However, the necessary connection between microexperience and *o*-experience is a posteriori rather than a priori. This explains why microexperiential zombies are conceivable despite being impossible (the strategy suggested in this objection is the 'a posteriori route' defined in the section above entitled, 'What does it take to constitute a non-physicalist solution to the hard problem?').¹⁸

The hard problem of consciousness does not really get off the ground if one does not feel that there need be connections of a priori entailment between *o*-consciousness and its supervenience base. For if one holds that there need be no a priori entailment between *o*-experience and its supervenience base, then why not just hold that its supervenience base is constituted by bog standard physical properties, whether or not such properties a priori entail *o*-experience? Why not just suppose that regular zombies are conceivable but impossible? This would be one way of making sense of a physicalist solution to the hard problem, and would be a lot more economical than any of the non-physicalist solutions to the hard problem.

Perhaps the panpsychist could claim that whilst we can legitimately infer from the conceivability of regular zombies to their genuine metaphysical possibility, this same move is fallacious in the case of microexperiential zombies. But there does not seem to be a relevant difference between the two cases which could justify advocating the move from conceivability to possibility in the one case but not the other.

Given that a move from conceivability to possibility is not always legitimate, e.g. we cannot legitimately infer from the conceivability to the possibility of water whose chemical constitution is XYZ, a move from the conceivability to the possibility of zombies must be justified in terms of features of the concepts involved in our conception of zombies. David Chalmers, for example, justifies the move from the conceivability of zombies to the possibility of zombies in terms of the fact that phenomenal concepts do not have distinct primary and secondary intensions (see Chalmers forthcoming for his latest version of his attack on materialism). But given that exactly the same kinds of concepts, i.e. physical and phenomenal concepts, are involved both in conceiving of a regular zombie and conceiving of a microexperiential zombie, it is difficult to see how one could consistently accept the move from the conceivability to the possibility of regular zombies and yet deny the move from the conceivability to the possibility of microexperiential zombies.

¹⁸ The strategy outlined in this objection, as opposed to the strategy outlined in objection 3, is a reductive form of panpsychism.

The moral of the story

Each of these five objections suggests a panpsychist picture of the world with a subvenience base rich enough to subvene consciousness. But in each case the subvenience base is made rich enough to subvene consciousness either by adding some ontological commitment in addition to microexperience – hidden aspects of microexperiential properties, special relations of phenomenal bonding, extra laws of nature – or by holding that the necessary connection between o-experience and its supervenience base need not be a priori. In each case, once we make the extra ontological commitment, or jettison the demand for a priori entailment, there seems to be no theoretical advantage to investing in microexperience.

Conclusion

All microexperiential zombie worlds are conceivable (except microexperiential zombies with homunculus experience), and so the physical facts plus microexperience (of any plausible kind) don't a priori entail o-experience.

Therefore, either panpsychism doesn't have what it takes to constitute a non-physicalist solution to the hard problem, or it has what it takes in virtue of committing to one of the following:

- (i) Hidden aspects of microexperience
- (ii) Unknown phenomenal bonding relations
- (iii) Extra laws of nature
- (iv) Microexperiential properties that come together and *change* into o-experience
- (v) A posteriori necessary connections between o-experience and its supervenience base

In all these cases there is a parallel, non-panpsychist, strategy which is more economical and more plausible. I conclude that a commitment to panpsychism does not help us to explain o-experience; o-experience being the very thing we want an explanation of consciousness to explain.*

REFERENCES

- ARMSTRONG, D. 1968, *A Materialist Theory of Mind*, London: Routledge and Kegan Paul.
- BLOCK, N. and STALNAKER, R. 1999, 'Conceptual analysis, dualism and the explanatory gap', *Philosophical Review* **108**, pp. 1–46.
- CHALMERS, D. 1995, 'Facing up to the problem of consciousness', *Journal of Consciousness Studies* **2**, pp. 200–19.

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- CHALMERS, D. 1996, *The Conscious Mind: Towards a Fundamental Theory*, Oxford: Oxford University Press.
- CHALMERS, D. 2002a, 'Does conceivability entail possibility', in: T. Gendler and J. Hawthorne, eds, *Conceivability and Possibility*, Oxford: Oxford University Press, pp. 145–200.
- CHALMERS, D. 2002b, 'Consciousness and its place in nature', in: D. Chalmers, ed., *Philosophy of Mind: Classical and Contemporary Readings*, New York and Oxford: Oxford University Press.
- CHALMERS, D. forthcoming, *The Two-Dimensional Argument Against Materialism*, URL: <<http://consc.net/papers/2dargument.html>>.
- DENNETT, D. 1991, *Consciousness Explained*, Boston: Little, Brown.
- DRETSKE, F. 1995, *Naturalising the Mind*, Cambridge, MA: MIT Press.
- EDDINGTON, A. 1928, *The Nature of the Physical World*, New York: Macmillan.
- FEIGL, H. 1958/1967, 'The "mental" and the "physical"', *Minnesota Studies in the Philosophy of Science* 2, pp. 370–497. Reprinted (with postscript) as *The 'Mental' and the 'Physical'*, Minneapolis: University of Minnesota Press.
- GOFF, P. 2006, 'Experiences don't sum', *Journal of Consciousness Studies* 13.
- GRIFFEN, D. 1998, *Unsnarling the World-Knot: Consciousness, Freedom, and the Mind-body Problem*, Minneapolis: University of Minnesota Press.
- HARMAN, G. 1990, 'The intrinsic quality of experience', *Philosophical Perspectives* 4, pp. 31–52.
- HILL, C. 1997, 'Imaginability, Conceivability, Possibility and the Mind-Body Problem', *Philosophical Studies* 87.
- HILL, C. and McLAUGHLIN, B. 1998, 'There are fewer things in reality than are dreamt of in Chalmers's philosophy', *Philosophy and Phenomenological Research* 59.
- JAMES, W. 1983, *The Principles of Psychology*, Cambridge, MA and London: Harvard University Press.
- LEVINE, J. 1983, 'Materialism and qualia: the explanatory gap', *Pacific Philosophical Quarterly* 64, pp. 354–361.
- LEWIS, D. 1966, 'An Argument for the Identity Theory', *Journal of Philosophy* 63.
- LEWIS, D. 1988, 'What experience teaches', in *Proceedings of the Russellian Society*, Sydney: University of Sydney.
- LEWIS, D. 1994, 'Reduction of mind', in: S. Guttenplan, ed., *Companion to the Philosophy of Mind*, Oxford: Blackwell.
- LOAR, B. 1990, 'Phenomenal states', in: J. Tomberlin, ed., *Philosophical Perspectives* 4, repr. in Chalmers ed. 2002. *Philosophy of Mind: Classical and Contemporary Readings*, Oxford, New York: Oxford University Press.
- LOCKWOOD, M. 1989, *Mind, Brain and the Quantum*, Oxford: Oxford University Press.
- LYCAN, W.G. 1996, *Consciousness and Experience*, Cambridge, MA: MIT Press.
- MAXWELL, G. 1979, Rigid designators and mind-brain identity, *Minnesota Studies in the Philosophy of Science* 9, pp. 365–403, repr. in Chalmers ed. 2002. *Philosophy of Mind: Classical and Contemporary Readings*, Oxford, New York: Oxford University Press.
- PAPINEAU, D. 2002, *Thinking about Consciousness*, Oxford: Clarendon Press.
- PERRY, J. 2001, *Knowledge, Possibility and Consciousness*, Cambridge, MA: MIT Press.
- REY, G. 1995, 'Towards a projectivist account of conscious experience', in: T. Metzinger, ed., *Conscious Experience*, Paderborn: Ferdinand Schöningh.
- RUSSELL, B. 1927, *The Analysis of Matter*, London: Kegan Paul.
- RYLE, G. 1949, *The Concept of Mind*, London: Hutchinson and Co.
- STOLJAR, D. 2001, Two conceptions of the physical, *Philosophy and Phenomenological Research* 62, pp. 253–281.
- STRAWSON, G. 1994, *Mental Reality*, Cambridge, MA, London, England: MIT Press.
- STRAWSON, G. 2002, 'Realistic materialist monism', in: S. Hameroff, A. Kaszniak, and D. Chalmers, eds, *Towards a Science of Consciousness III*, Cambridge, MA: MIT Press.
- STRAWSON, G. 2006, 'Realistic monism: why physicalism entails panpsychism', in: A. Freeman, ed., *Consciousness and its Place in Nature*, Exeter: Imprint Academic, 2006, pp. 3–31.
- TYE, M. 1995, *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind*, Cambridge, MA: MIT Press.