

Spatiotemporal Functionalism v. The Conceivability of Zombies*

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In Daniel Stoljar's ingenious and challenging article "Chalmers v. Chalmers", he argues that there is an inconsistency between my work in the philosophy of mind and my work in epistemology. In particular, he argues that dualist and structuralist elements of my philosophical views are in deep tension with one another. I could sit back and hope to come out of this with at least one victory or a split decision, but Stoljar suggests that I am threatened with a lose-lose. Here I will make a case that both sides can be winners.

I will argue that there is not even a prima facie tension between structuralism and dualism at least as they are usually understood. However, I accept that there is a prima facie tension between two views that play a role in the structuralism and the dualism that I accept. One aspect of my structuralism is a version of spatiotemporal functionalism, which prima facie asserts an a priori entailment between certain physical truths and truths about conscious experience. A key premise in my arguments for dualism is the conceivability of zombies, which prima facie denies such an a priori entailment. In what follows I will argue that the prima facie tension can be defused.

1. Structuralism vs Dualism

As usually understood, dualism (about the mind/body relation) is the view that the mental and the physical domains are fundamentally distinct domains. A weak form of property dualism says that mental properties are not grounded in or identical to physical properties, or vice versa. A stronger form says that physical properties and mental properties are distinct and fundamental. There are also analogous versions of substance dualism, applying to mental entities as well as mental properties. I am sympathetic with the weak form of property dualism and am at least open to the other views. I am not fully committed even to the weak form, as I am also open to

⁰Thanks to Daniel Stoljar for comments and for inspiration.

panpsychism and other forms of Russellian monism that may reject property dualism, but I will set these aside for now.

As usually understood, structuralism (about the physical) says that the physical domain is a structural domain. Here a structural domain is one that is best understood in structural terms. Structural terms include logical and mathematical terms, perhaps along with terms for laws, causation, fundamentality, and parthood (sometimes the observational is also included for some purposes). Structuralism comes in ontological versions (e.g. physical properties are structural properties), epistemological versions (e.g. knowable physical truths are structural truths), conceptual versions (physical concepts are structural concepts), and more. I endorse at least the conceptual version and am open to the others.

Understood this way, it is not obvious why even the strongest versions of dualism and structuralism—substance dualism and ontological structuralism, say—should be in tension with each other. Structuralism tends to deflate the physical by removing various nonstructural elements from our picture of the physical world. Deflating the physical in this way if anything makes dualism more plausible, not less. In one common version of the story, structuralism traces to Galileo and Descartes when they kicked colors and other qualities out of the physical world into the mind. Of course deflating the physical world in this way tends to inflate the mind, and it is no accident that Galilean structuralism was often combined with Cartesian dualism. In my own work, I have sometimes used structuralism about the physical as one key premise in arguing for dualism.¹

Now, it is true that structuralism about the physical need not lead to dualism. For a start, one needs to conjoin it with a non-structuralist view of the mental. And even then, it is possible to combine at least conceptual and epistemological structuralism with non-dualist views such as panpsychism and Russellian monism, where the mental or perhaps the proto-mental serves to ground the structures in question. Views like this are sometimes understood as physicalist, neutral monism or idealist rather than dualist. Still, the fact that structuralism can be combined with views of this sort does nothing to suggest that it cannot also be combined with dualism.

The prospect of idealism here leads us closer to the heart of the matter for Stoljar. He says that structuralism and dualism conflict in the same way that idealism and dualism conflict. The dualist says that matter is a fundamental element in nature, and the idealist says that it is not. The problem in effect is that idealism is too deflationary about the physical. According to idealism, matter (if it exists at all) is grounded in the mental.

¹See the “structure and dynamics” argument in Chalmers 2003. Alter 2016 gives a thorough exposition, analysis, and defense.

So perhaps Stoljar's tension between structuralism and dualism is that structuralism about the physical is also too deflationary in this way, in that it leads to grounding the physical in the mental. Now, structuralism as usually understood certainly need not lead in that direction. On the most common structuralist views, the physical has nothing at all to do with the mental. It is a structure that exists wholly outside the mind. But other sorts of structuralism do give a role to the mental.

Stoljar makes clear that he is concerned with a certain variety of structuralism, one which I favor, which we might call *phenomenal structuralism*. On this view, the physical is characterized at least partly in virtue of the role it plays in affecting the mental. Following the analogy with idealism, perhaps Stoljar's worry is that on this view, the physical is at least partly grounded in the mental. For a relatively clear example, consider a view where mass is understood as the power to cause experiences as of massiveness. Then mass is a partly mental power, and it is partly grounded in the mental. One might think this is incompatible with dualism and leads to a sort of idealism.

There are a few things to say here. First, even this strong view where physical properties are powers to affect the mind does not lead to idealism. At most, physical properties will be *partially* grounded in the mental, and not fully grounded as on an idealist view. Second, and related, this view seems quite consistent with an underlying dualism. The powers may be in large part grounded in substances and properties quite independent of the mind. So we still have a dualism of these substances and properties and mental substances and properties (though perhaps familiar physical categories are partly grounded in both). Third, my own view is not this metaphysical variety of phenomenal structuralism. I am much more inclined to a conceptual version, where experiences play a role in fixing reference to physical properties such as mass, but where the properties themselves have no ontological dependence on the experiences that fix reference. On this conceptual version of phenomenal structuralism, there is no inconsistency with ontological dualism.

Still, there remains a tension in the vicinity. There is a *prima facie* tension between *conceptual* phenomenal structuralism about the physical, which holds that there is a certain conceptual dependence of physical concepts on phenomenal concepts, and *conceptual* dualism, which holds that physical and mental concepts are independent of each other. Stoljar himself does not put things in quite this way, but I think it captures what is at issue in the tension he goes on to discuss. Now, I think that at this point we have moved a long way from a tension between structuralism and dualism as they are typically understood. But it is true that these are both views that I have expressed sympathy with, so there is at least a tension here for me. I move to this tension in the following section.

2. Stoljar's Inconsistent Triad

In Stoljar's paper, conceptual dualism takes the form of what he calls the *no entailment thesis*—roughly, that there is no a priori entailment from any physical truth to any phenomenal truth. This thesis is often put in terms of the *conceivability of zombies*: that is, that there is no a priori inconsistency in the zombie-world hypothesis, which says that $P \& \neg Q$, where P is the conjunction of physical truths about our world and Q says that there is conscious experience (or that some being is conscious). It is easy enough to see that this thesis entails Stoljar's no-entailment thesis, at least if we understand phenomenal truths in such a way that if there is no conscious experience (or no conscious being) there are no phenomenal truths.

Conceptual phenomenal structuralism takes the form of what Stoljar calls *phenomenal functionalism about the spatiotemporal* (I will call this spatiotemporal functionalism for short)—roughly, that spatiotemporal concepts can be analyzed in terms of effects on the phenomenal. Stoljar puts this in a particularly simple form (one that I have elsewhere called *simple spatial functionalism*), one where or concepts of spatial properties (squareness, say) are understood as equivalent to concepts of those properties that cause certain spatial experiences. This is analogous to a common view of color, on which concepts of color properties (redness), say are understood as concepts of those properties that cause certain color experiences.

In the past (e.g. Chalmers 2003) I have certainly endorsed the no entailment thesis, at least in the form of the conceivability of zombies. I have also endorsed some versions of spatiotemporal functionalism (Chalmers 2012), although not quite the simple version that Stoljar focuses on. This will become relevant later.

Stoljar actually puts his problem in terms of three theses that generate an inconsistency:

- (1) For any phenomenal truth T^* , there is no physical or topic-neutral truth T , such that T a priori entails T^* .
- (2) For any physical truth T , there is a truth R such that T is a priori equivalent to R , where R is a Ramsey sentence whose o-terms are (a) logical/mathematical (b) causal/nomic and (c) spatiotemporal.
- (3) For any spatiotemporal term α , a truth of the form 'there is an x such that x is α ' is a priori equivalent to a truth of the form 'there is an x such that x is the normal cause of experience E '.

I agree that there is a tension between (1)-(3). In fact, I think the tension can be stated more

simply. Thesis (2) plays no essential role in generating the tension. (1) and (3) are enough, along with the ancillary claim that the spatiotemporal truths in (3) are themselves physical truths. One can also remove the inessential reference to the topic-neutral in (1). (3) also needs to be clarified a little to be put in the standard functionalist form. That leaves us with something the following.

(1') For any physical truth T and any phenomenal truth T^* , T does not a priori entail T^* .

(2') There are physical truths of the form ' x is α ' (for a spatial predicate α) that are a priori equivalent to phenomenal truths of the form ' x has a property which is the normal cause of experience E '.

Stated this way, (1') and (2') are clearly inconsistent. One might have thought that I endorse both of them. What is to be done? ²

I start with a couple of minor observations. First, the point here does not really depend on spatiotemporal functionalism. One could obtain more or less the same dilemma out of a phenomenal version of *mass functionalism* (Chalmers 2012, pp. 323-4), where reference to mass is fixed in virtue of its normally bringing about certain experiences of massiveness. I think that functionalism about mass is if anything more antecedently appealing than functionalism about space, though as with space I don't think that the simple phenomenal version here is the best form. This brings out that simply abandoning spatial functionalism (perhaps in favor of spatiotemporal primitivism, where spatiotemporal concepts are primitive) will not resolve the issue on its own, unless one is equally prepared to abandon mass functionalism and related theses.

Second, for the dialectical purposes of arguing for dualism, one does not need anything nearly as strong as (1'). All one needs is that there *exists* a phenomenal truth that is not a priori entailed by any physical truths. That might be the truth that someone else is having an experience of smell, or that a certain dog is conscious, or that some human in the future will have spatial experience. If it is a priori consistent that the physical truths hold but the dog is a zombie, then (assuming the dog is actually conscious), the argument for dualism still goes through. And this claim is perfectly consistent with spatial functionalism. Spatial functionalism need give no role to smell experiences, no role to dogs, and no role to future people in fixing reference to spatial properties.

²Roelofs (2017), addressing an earlier version of Stoljar's dilemma (Stoljar 2015, pp. 14-19), suggests replacing the conflicting theses about a priori entailment with more complex theses involving two-dimensional modal evaluation (considering worlds as actual and as counterfactual). I think there is at least a prima facie case for the simpler formulations involving a priori entailment, so I will stay with these.

Typically the experiences that matter for fixing reference are spatial experiences in some group of current humans—perhaps just one’s own experience, or perhaps one’s community or one’s species—or something along those lines.

Stoljar acknowledges this objection as his objection 2. He says it at least weakens the dialectical force of the conceivability argument by limiting its scope. I agree that it limits the scope, but I don’t think this much weakens the force. If we have a good argument for dualism about smell experience, dualism about dog’s experience, and dualism about future human’s experience, then we have established mind–body dualism. And once we have accepted this much, it is a very small step to accepting dualism about all experience. Still, I accept that this objection does not remove the ad hominem problem for me, since I have accepted the stronger claim in the past.

3. Varieties of Spatial Functionalism

Moving closer to the heart of the matter: I do not accept (2’) or (3) as they stand. These theses express a view that in *Constructing the World* I called *simple spatial functionalism*. According to simple spatial functionalism, reference to spatial properties is fixed wholly by their role in causing certain sorts of experience. I think simple spatial functionalism is implausible. It is plausible that nonphenomenal roles are also important in fixing reference to spatial properties: for example, roles of space in interaction and in motion. Even restricting attention to phenomenal roles, the roles must be made more complex to accommodate considerations such as holism and compositionality in spatial experience. The view I am most inclined to accept is neither a purely phenomenal spatial functionalism (with only phenomenal roles) or nonphenomenal spatial functionalism, but a combined phenomenal/nonphenomenal spatial functionalism (combined spatial functionalism for short) where reference to space is fixed by both phenomenal and nonphenomenal roles.

A terminological note: I use “phenomenal spatial functionalism” for spatial functionalist views where the phenomenal plays at least some role—that is, where the relevant functional roles include reference to the phenomenal. This contrasts with nonphenomenal spatial functionalism where the phenomenal plays no role. Understood this way, combined spatial functionalism is a version of phenomenal spatial functionalism. I reserve *purely phenomenal spatial functionalism* for views where all the roles are phenomenal, and *simple spatial functionalism* for the simple version of purely phenomenal spatial functionalism discussed above.³

³In *Constructing the World* (e.g. pp. 323-4, 335, 418-9) I canvas purely phenomenal, nonphenomenal, and combined versions of spatiotemporal functionalism and mass functionalism and do not express a preference between them. Stoljar

Once we move away from purely phenomenal spatial functionalism, Stoljar's inconsistency disappears. Zombie scenarios with space but no consciousness remain perfectly consistent. In such a world, nothing plays the phenomenal role associated with space, but something still plays the nonphenomenal roles associated with space. My combined spatial functionalism is consistent with the claim that in this case, playing the nonphenomenal role is sufficient to count as space. It is a commonplace that on functionalist views about X, one need not play all the roles associated with X to count as an X. Playing some part of the role often suffices to deserve the associated name. On my view, in a zombie scenario, something's playing the nonphenomenal roles associated with space suffices for it to deserve the name of space.

This response is closely related to Stoljar's objection 5, which says Stoljar's dilemma can be avoided by appealing to a nonphenomenal spatial functionalism. Stoljar's response does not obviously apply to my combined spatial functionalism, but it is nevertheless worth addressing. Stoljar says that nonphenomenal spatial functionalism leads to a version of Newman's problem for structuralism. Newman's original problem concerned a pure structuralism that invokes specifications wholly in logical and mathematical terms, and concludes that these specifications are so thin that they only constrain the size (cardinality) of the world. Stoljar suggests that if we endorse nonphenomenal spatial functionalism, then our specifications will involve only logical and mathematical terms along with causal/nomic terms. This will constrain only the "size and structure" (that is, cardinality and causal/nomic structure) of the world, which he says is not enough to make the relevant physical truths true.

Stoljar's main argument here is that descriptions in terms of size and structure are topic-neutral—that is, they are a priori equivalent to descriptions in logical/mathematical and causal/nomic terms— while physical descriptions are not topic-neutral. The dialectical force of this argument is unclear. Many contemporary structural realists accept precisely that physical descriptions are topic-neutral. Stoljar resists this view, saying that the physical is not topic-neutral, but it is not clear that he has given any reason other than the Newman-style objection, which will be circular in the current context. Perhaps part of his reason is that there is a qualitative or phenomenal element in our conception of the physical. I suspect many structuralists would argue with this, but

quotes p. 335 of *Constructing the World* to make the case that I am committed to his version of spatial functionalism. In fact, in that discussion I call this the "simplest" functionalist view and immediately say that it may need to be refined to bring in nonphenomenal roles, holism, and other constraints. Ney (2018) and Green and Rabin (2019) also argue against my views largely by attributing simple spatial functionalism to me and arguing against it. Chalmers (2019) responds to Ney.

even if it is correct, a combined spatial functionalism of the sort I favor is well-positioned to avoid the problem. More generally, it seems clear that Stoljar's Newman-style objection does not pose a problem for combined spatial functionalism, on which spatial descriptions are not topic-neutral descriptions.

In any case, at this point I have been cleared of the charge of inconsistency. Stoljar is arguing here not that my structuralism and my dualism are inconsistent, but that a relevant version of my structuralism is false. Whether structuralism (or for that matter dualism) is correct is a substantive issue worth debating, but it is a different issue.

Still, I think we are not yet to the bottom of the matter. For a start, even on a combined spatial functionalism one can perhaps find a priori entailments that are contrary to the spirit of the no-entailment thesis. For example, there may be epistemically possible scenarios where something plays the phenomenal roles associated with space but not the nonphenomenal roles, and thereby counts as space. A physically identical zombie scenario where space plays neither phenomenal or nonphenomenal roles will then presumably be impossible, so there will be an a priori entailment from a physical description of this scenario to the existence of consciousness. This will not be a counterexample to (1'), as (1') concerns entailments from physical *truths* to phenomenal truths and the physical description of this merely possible scenario will not be a truth. But it will be a counterexample to a version of (1') that is not restricted to truths. Perhaps a version of combined spatial functionalism can be devised that avoids this problem, but the matter is not obvious.

The underlying worry is that even on my combined spatial functionalism, there remains an attenuated conceptual connection between physical concepts and concepts of conscious experience. And one might have thought the spirit of my view is that physical and phenomenal concepts are entirely independent, without any conceptual dependence of one on the other. Indeed, one might have thought that the general spirit of my view of the mind-body relation would be consistent with even the simple phenomenal version of spatial functionalism where reference to space is fixed as above. So more work is required to resolve the tension.

4. Structuralizing the physical

Here is what I think is going on. My view is that the really fundamental gap is not the gap between physical and phenomenal truths but the gap between structural and phenomenal truths, where structural truths are those involving logical, mathematical, causal, nomic expressions and perhaps a few more topic-neutral expressions (but not phenomenal expressions). As the argument I set out

earlier suggests, the structural does not seem to add up to the phenomenal. On the face of it, any structural claim is a priori consistent with the absence of consciousness, and no structural claim ever a priori entails a positive phenomenal claim.

If one adopts a conception of the physical so that physical concepts are structural concepts, then the gap between the structural and the phenomenal entails a precisely analogous gap between the physical and the phenomenal. On the other hand, if one adopts a conception of the physical so that phenomenal functionalism about space, time, or mass is right, then physical concepts are not purely structural concepts. They are impure structural concepts, with an element of the phenomenal admixed.

If phenomenal spatial functionalism is correct, then our ordinary concepts of space, time, and mass are impure structural concepts. On the other hand, it is perfectly possible to define a purely structural concept of these things. We can for example stipulate that $mass^*$ is the property that actually plays the mass role within physics. Here the role is derived from all the physical laws that mass is involved in (such as inertial and gravitational laws), and $mass^*$ is defined from these in the familiar Ramseyan way as the property that actually plays those roles. If we make the same move simultaneously for every fundamental physical property, then $mass^*$ will be defined in structural terms (in terms of logic, mathematics, lawhood, and perhaps fundamentality). The same goes for $space^*$ and $time^*$, or perhaps $spacetime^*$ insofar as this is the fundamental notion.

Even if our ordinary concepts of mass, space, and time are impure structural concepts that generated an attenuated gap, the structuralized concepts of $mass^*$, $space^*$, and $time^*$ are pure structural concepts that generate an unattenuated gap. It is also worth noting that although the concepts of mass and $mass^*$ are distinct, they pick out the same property. This follows from the fact that one and the same property (namely mass) plays the partially phenomenal role (causing mass experiences and so on) and plays the intra-physics role (resisting acceleration and so on). So we can reasonably say that $mass = mass^*$, and indeed that necessarily $mass = mass^*$ (given that both 'mass' and ' $mass^*$ ' are rigid designators).

It is then possible to run a version of the conceivability argument using these purely structural concepts. In place of P , the conjunction of all microphysical truths about the world using mass, space, and time, we can invoke P^* , where these expressions are replaced by $mass^*$, $space^*$, and $time^*$. Then it is extremely plausible that $P^* \& \neg Q$ is a priori consistent, and from here we can go on to infer in the usual way that $P^* \& \neg Q$ is metaphysically possible (or Russellian monism is true, but I set this disjunct aside here). Furthermore, given that ' $mass^* = mass$ ' is necessary, and likewise for other corresponding pairs, it follows ' P^* iff P ' is necessary. It thereby follows that

$P \& \neg Q$ is metaphysically possible and physicalism (even involving mass, space, and time rather than the starred version) is false.

Stoljar considers this line of reasoning (which appears in Alter 2016, attributed to me) in the second half of his discussion of objection 5. His reply is that we have no reason to think that mass and mass* are modally equivalent (that is, that necessarily mass is mass*). He says that they are not a priori equivalent, and that therefore “we have good conceivability-style reasons for thinking they are not modally equivalent either”. I think this is a non sequitur. Prima facie ‘mass=mass*’ is an a posteriori necessity if true at all, and one certainly can’t infer non-necessity from non-apriority here.

Stoljar also gives a direct argument that mass and mass* are not the same property: mass* is a topic-neutral property while mass is not. Again, this does not seem quite right. Certainly the concept of mass* is a topic-neutral concept (the property that plays a certain structural role) while the concept of mass is not (the property that plays a certain partly phenomenal role). But nothing here entails a difference in the status of the properties picked out. Depending on one’s underlying metaphysics of the physical, it could be that the property that plays both roles is a quiddity, which Stoljar counts as a non-topic-neutral property. Or it could be that the property that plays both roles itself a purely structural property, which is presumably a topic-neutral property. Either way, it remains extremely plausible that one and the same property can play both phenomenal roles in causing experiences and structural roles within physics. And that is all we need to get the argument going.

One might think that while this move suffices to defend a conceivability argument for dualism, it does not fully resolve the original tension, because the concept of mass* is an artificial stipulated concept and not a physical concept. At best we have found a gap between physical* concepts and phenomenal concepts. Physical concepts still support only an attenuated gap. In fact, I think we can do much better than this, as physical* concepts have a strong claim to be counted as physical concepts in their own right. I will lay out this case in the final section.

5. Resolution

My final resolution of the tension uses a technique Stoljar himself made famous in a different context: remove an apparent contradiction by distinguishing two different conceptions of the physical. To resolve a tension in the metaphysics of mind involving physical and phenomenal properties, Stoljar (2001) distinguished o-physical properties, which are tied to physical objects,

and t-physical properties, which are tied to physical theories.

To resolve the current tension involving physical and phenomenal concepts, I will distinguish p-physical concepts, or pretheoretical physical concepts, from t-physical concepts, or theoretical physical concepts. Phenomenal spatial functionalism is true of the p-physical concepts but not the t-physical concepts. The unattenuated physical/phenomenal gap is true of the t-physical concepts but not the p-physical concepts.

The p-physical or pretheoretical concepts of space and time are the concepts we deploy pre-scientifically. We had concepts of distance and duration long before we had a science of them. Arguably the same goes for mass, where we at least had closely related concepts such as weight. It is plausible that on our pretheoretical concept of space, space is understood partly in terms of its phenomenal role. Reference to space is fixed in part by its role in causing spatial experience, and so on. If so, some sort of phenomenal spatial functionalism is true of our pretheoretical spatial concepts.⁴

The t-physical or theoretical concepts of space and time are those deployed in our best physics (or a completed physics) of these things. Theoretical physics involves the concept of relativistic spacetime, a concept not available pretheoretically. Even for concepts such as mass, the theoretical concepts are quite different from the pretheoretical concepts. It is plausible that t-physical concepts of mass, space, and time characterize them by their nonphenomenal role within physics. Mass is understood in terms of its inertial and gravitational role. That is, the t-physical concept of mass works roughly like the concept of mass* introduced above. Likewise, the t-physical concept of space or spacetime is understood in terms of its dynamics and other roles, as are the concepts of space* or spacetime* as defined above. If so, some sort of nonphenomenal functionalism is true of our t-physical spatiotemporal concepts.⁵

At this point, the tension between phenomenal spatial functionalism and a pure gap thesis can

⁴Strictly speaking, I think things are a little more complicated than this. I think we may have multiple pre-theoretical concepts of space, including what I have called an Edenic concept of space as well as this functional concept. We may also have multiple theoretical concepts of space, including concepts that give some role to the observational and the phenomenal, and nonphenomenal concepts that emphasise different nonphenomenal roles. I pass over these complications for simplicity, since all I really need is that there are pre-theoretical and theoretical concepts that work in the way I suggest.

⁵The recent literature on spacetime functionalism in the philosophy of physics (e.g. Knox forthcoming) involves precisely this approach. It spells out a detailed nonphenomenal spatiotemporal functionalism about the theoretical (t-physical) concept of spacetime in terms of certain key roles of spacetime in physical theory. Chalmers (forthcoming) discusses the relationship between my spatial functionalism and this sort of spacetime functionalism.

be dissolved. The former holds of p-physical concepts (but not t-physical concepts), and the latter holds of t-physical concepts (but not p-physical concepts). The only residual issue is to make sure this is not ad hoc special pleading.

Here it is worth invoking Stoljar's initial characterization of the tension as a tension between my philosophy of mind (meaning metaphysics of mind) and my epistemology. The gap thesis plays a role in the metaphysics, arguing against physicalism and for views such as dualism and panpsychism. Phenomenal spatial functionalism plays a role in the epistemology, arguing against global skepticism in our knowledge of the physical world.

Where issues about the metaphysics of physicalism are concerned, it is plausibly the t-physical concepts that are at issue. Physicalism is often defined in terms of physics and construed in effect as physics-alism. The properties it is concerned with are the physics-al or t-physical properties, those invoked by physics. The relevant concepts of these properties are our physics-al or t-physical concepts. Our t-physical concepts are plausibly structural concepts, so this is the domain where a nonphenomenal structuralism has its clearest applicability. As a result, we have a less attenuated physical-phenomenal gap, well-suited to play into the argument for physicalism.

Where epistemological issues are concerned, it is plausibly the p-physical concepts that are at issue. In answering the skeptic we are not aiming for theoretical knowledge of physics. We are simply aiming for ordinary pretheoretical knowledge of the physical world. For example, we are aiming for knowledge of objects in space around us using the ordinary p-physical concept of space, not the theoretical concept. Our p-physical concepts are impure structural concepts, so this is the domain where phenomenal spatial functionalism has its clearest applicability. As a result, we have a more attenuated epistemological gap from the phenomenal to the physical, well-suited for the epistemological project of moving from experience to the pretheoretical physical world.

We can now see that Stoljar's tension between my metaphysics of mind and my epistemology is not a bug but a feature. Where the metaphysics of mind is concerned, t-physical concepts and properties are what we are concerned with. T-physical concepts tend to maximize the gap from physical to phenomenal, which serves my metaphysical purposes nicely. (P-physical concepts also yield a sufficient gap, but not as elegantly.) Where the epistemology is concerned, P-physical concepts and properties are what we are concerned with. P-physical concepts tend to minimize the epistemological gap from phenomenal to physical, which serves my epistemological purposes nicely. There is nothing at all ad hoc here: the metaphysical issue revolved around the t-physical all along, and the epistemological issue revolved around the p-physical all along.

In any case, the inconsistency between conceptual dualism and phenomenal conceptual struc-

turalism is long gone. We are instead left with a pleasing harmony between conceptual dualism about the t-physical, which serves my metaphysical purposes, and phenomenal conceptual structuralism about the p-physical, which serves my epistemological purposes.

Of course it is a further issue whether these views are correct. But with Stoljar's obstacle removed, there is at least some prospect of a win-win.

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