

This article was downloaded by: [Southern Methodist University Cul Fond]

On: 10 November 2010

Access details: Access Details: [subscription number 918548872]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Australasian Journal of Philosophy

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713659165>

Emergentism and supervenience physicalism

Robert J. Howell^a

^a Southern Methodist University,

To cite this Article Howell, Robert J.(2009) 'Emergentism and supervenience physicalism', Australasian Journal of Philosophy, 87: 1, 83 – 98

To link to this Article: DOI: 10.1080/00048400802215398

URL: <http://dx.doi.org/10.1080/00048400802215398>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

EMERGENTISM AND SUPERVENIENCE PHYSICALISM

Robert J. Howell

A purely metaphysical formulation of physicalism is surprisingly elusive. One popular slogan is, ‘There is nothing over and above the physical’. Problems with this arise on two fronts. First, it is difficult to explain what makes a property ‘physical’ without appealing to the methodology of physics or to particular ways in which properties are known. This obviously introduces epistemic features into the core of a metaphysical issue. Second, it is difficult to cash out ‘over-and-aboveness’ in a way that is rigorous, metaphysically pure and extensionally apt for the purposes of the debate. In this paper I will touch on the first problem, but I wish to focus on the second. In particular, I will focus on the claim that supervenience theses cannot define physicalism because they allow classical emergentist dualism through the physicalist door [Horgan 1993; Kim 1998; Wilson 2005]. I will argue that when the relevant supervenience thesis is metaphysical, emergentism is excluded. Against recent arguments to the contrary, I maintain that this is the case even given necessitarianism about natural laws [Wilson 2005]. I will argue that a necessitarian with emergentist sympathies will be forced either into a type of quasi-panpsychism, where our basic physical properties contain the illicit seeds of mentality at their core, or she will be forced to admit that emergence laws are not necessary after all. Either way, the combination of necessitarianism and emergentism does not provide a counterexample to supervenience physicalism.

I.

The notion of supervenience was introduced into the contemporary discussion of the mind-body problem by Donald Davidson, but there has since been a productive cottage industry spelling out different varieties of supervenience and examining their philosophical uses. Most important is the notion of strong supervenience. Jaegwon Kim formulates this as follows:

SSV: For two domains of properties A and B, A strongly supervenes on B just in case: Necessarily, for any object *x* and any property F in A, if *x* has F then there is a property G in B such that *x* has G, and *necessarily* if any *y* has G, it has F.

[adapted by author from Kim 1993: 80]

Less formally, the idea is that if you fix an object's B properties, its A properties will also be fixed, and this is true in all worlds as well as across worlds. The modality employed in SSV can vary, but as I will argue, metaphysical necessity is what is desirable for defining the terms of this debate. This suggests the following basic supervenience definition of physicalism:

SSVP: Physicalism is true iff all properties strongly supervene with metaphysical necessity on the basic physical properties.¹

As it stands, of course, SSVP contains a whiff of circularity, as will all supervenience definitions, since they must use the notion of 'the physical' in specifying the supervenience base. Defining this more basic notion of physicality is the job of the next section, but the formal adequacy of supervenience definitions can be determined independently.

SSVP looks promising as a definition of physicalism because it maintains that in some sense everything depends upon the physical: if God, when constructing the world, fixed all of the physical properties, he would not have to do anything else; the rest would come 'for free'. Although SSVP captures the spirit of the physicalist doctrine, two issues suggest that it is not perfectly adequate. On one hand, SSVP as formulated—in terms of strong supervenience—might seem to make physicalism inconsistent with externalism about the content of mental states. I have thoughts about water, my twin has thoughts about twater, yet we are physical twins—the difference between us depends upon our histories or upon the substance with which we actually interact. This type of consideration has led many to prefer global supervenience theses which formulate physicalism in terms of the necessary similarity of worlds taken as a whole. In the end, I am convinced that global supervenience claims aren't ontologically superior, but they might in the end be clearer.² So consider the following:

GSVP: Physicalism is true iff a world that is a physical duplicate of our world is a duplicate *simpliciter* of our world.

The problem with GSVP is that it seems to make physicalism false if ghosts and non-physical minds are even *possible* in worlds that have the same physical furniture as our world. I am not convinced that the metaphysical possibility of ghosts should be countenanced, but perhaps one should be agnostic about such things. Given this, it seems best to say that physicalism is a thesis about our world, where other worlds are part of the thesis only in so far as they demonstrate the modal robustness of the relations that obtain in our world. One must be careful about how 'our world' figures into the

¹As [Schaffer 2003] has noted, there are issues surrounding the assumption of a 'fundamental level' of reality in these sorts of supervenience definitions. I don't think this threatens the supervenience thesis (SVP) I advance shortly. Montero [2006] discusses other ways of defining physicalism without the assumption of a 'fundamental level' of reality.

²See [Bennett 2004]. This is given a few assumptions about how the global supervenience thesis is formulated as well as a closure condition on properties. Stalnaker makes a similar point about the equivalence in ontological power in [Stalnaker 2003b].

supervenience thesis, however. Jackson's well-known formulation, for example, fixes the problem of possible ghosts but runs into other problems. He proposes the following thesis:

JGSVP: Physicalism is true iff any world which is a *minimal* physical duplicate of our world is a duplicate *simpliciter* of our world.

[adapted by author from Jackson 1998: 12]

A 'minimal physical duplicate of our world is a world that (a) is exactly like our world in every physical respect . . . , and (b) contains nothing else in the sense of nothing more by way of kinds or particulars than it *must* to satisfy (a)' [Jackson 1998: 13]. In other words, a minimal physical duplicate of our world contains the physical properties, with no gratuitous additions.

This thesis fails, however, because of the possibility of what John Hawthorne calls 'blockers' [Hawthorne 2002]. Suppose that in our world the connection between physical configuration P and mental property M is such that P necessitates M only if there is no B in the world. Bs are not in our world—they are alien, non-physical entities which only sever the connection between Ps and Ms. The intuition is that physicalism should not tolerate this looseness of connection between mental and physical properties, and yet JGSVP would be insensitive to this because we are only looking at minimal duplicate worlds, not worlds with new things like Bs in them.³

To solve this problem, I suggest the following, which is indebted to a suggestion by Chalmers [1996: 39 – 40, 364]:

SVP: Physicalism is true of our world iff any world that is a physical duplicate of our world either is a duplicate of our world *simpliciter* or contains a duplicate of our world as a proper part.

To say that a world contains a duplicate of our world as a proper part is just to say that it is our world with some additions. So the idea is that if physicalism is true, God can make a duplicate of our world *simpliciter* just by duplicating the physical properties in our world. What's more, supposing God then decided to add things to that duplicate world, his additions would not change the intrinsic properties of what he had already created. So suppose our world had immaterial souls in it. SVP would deem physicalism false about our world, because replicating the physical features of our world would not produce a duplicate of our world—the souls would be missing.⁴ Nevertheless, ghosts in *other* worlds would not falsify physicalism, according to SVP, since they would include our world as proper parts, and the possibility of blockers would falsify physicalism since blocker worlds would not contain a duplicate of our world. This is the result we want.

³This problem confronts David Lewis's supervenience thesis tailored to avoid the problem of ghosts. See [Lewis 1999b: 37]. For the problem with his thesis, see [Hawthorne 2002].

⁴SVP does not say, for example, that once we duplicate the physical base properties of our world then we've duplicated everything physical. It says that when we duplicate the physical base properties then we've duplicated everything and no further additions to the world can change that.

SVP does allow the following to be the case, however, which might give us pause. It allows that physicalism is true even if there could be a physical duplicate of our world where one of the individuals in that world had one further mental state, or where thoughtless things had active mental lives. Since worlds where these scenarios obtained would have our world as a proper part, SVP would be satisfied. But such scenarios—allowing mental discernibility despite physical indiscernibility—sound like just the sort of thing supervenience was meant to rule out. Nevertheless, I think this is simply something we will have to live with if we want physicalism to be a contingent thesis. For if we are to allow for the possibility of non-physical minds, it would seem hard to rule out the possibility of ‘free-range’ mental properties that can grab onto brains or rocks, adding sensations and thoughts that are not present in the actual world. It has to be remembered, however, that this definition of physicalism is meant to capture the sense in which *this* world is physical. If physicalism as defined by SVP is true, the dynamics of things in this world do, in fact, follow the intuitive physicalist behaviour: mental changes require things to change physically. It is only when alien things are inserted into our world that it appears that the mental comes unmoored from the physical. In other words, physicalism should just say that nothing in our world is weird. If some worlds which are physical duplicates of our world have thinking rocks, that is a sign that those worlds are weird, not that our world is weird. Nevertheless, if one is still bothered, I think one will be forced to go beyond a contingent physicalist thesis, accepting GSVP as the definition of physicalism.

II.

Supervenience definitions of physicalism can appear circular at first blush since they contain ‘physical’ as both the *definiendum* and as part of the *definiens*. There are, really, two senses of ‘physical’ at work here: there is a broad sense, according to which everything that is physicalistically acceptable is physical. Thus, if a supervenience definition of physicalism succeeds, the broad sense will cover not only the properties in the supervenience base, but the properties that supervene as well. There is also a narrower sense, which is itself employed in the supervenience definitions of physicalism. This must receive independent definition before a supervenience definition of physicalism can get off the ground. For clarity’s sake, I will call things that are physical in the broad sense ‘physical*’ and things that are physical in only the narrow sense ‘physical’, without annotation. As long as ‘physical’ can be defined independently of ‘physical*’ there is no problem of circularity. Here I wish to gesture at a way to do just that.

It proves to be very difficult to define the physical, so much so that there are those who claim that it cannot be done and that there is therefore not really any substantive question of physicalism at all.⁵ At one point it might

⁵See, for example, [Crane and Mellor 1990; Stroud 1987]. For a thorough discussion of the issue of defining the physical, see [Poland 1994].

have been plausible to talk in terms of matter, but now that physics countenances fields of various sorts, things are not so obvious. It is also tempting to go with Descartes, defining the physical in terms of those things which are located in space, but this only works on the assumption that things like ghosts and phenomenal feels cannot be located in space. Perhaps this assumption is right, but it is not obviously so. It is very difficult to imagine how one might define the essential feature common to all physical things but that all non-physical things lack, at least prior to the completion of our investigation into those things [Chomsky 1972; Dowell 2006]. This problem, I think, scuttles many attempts to define the physical, but philosophers try to elude it in various ways, with varying degrees of success. What follow are what seem to be the predominant strategies, along with my reasons for believing they are inadequate. While my remarks here will be brief, I hope they will be adequate to motivate the account I accept for the purpose of this paper.

Definitions in terms of Physics: The physical is simply that which is acknowledged by the science of physics. This definition faces a notorious difficulty often attributed to Carl Hempel [1969; 1980]. Either the definition proceeds in terms of what is countenanced by current physics or it proceeds in terms of what would be acknowledged by an ideal or completed physics. If the former, physicalism is surely false since current physics is almost certainly incomplete. If the latter, however, it is hard to give content to the notion since no one knows what a future physics will look like. What's more, we can't be sure that the standards and methods of a future physics won't be perverse and incorrect, perhaps allowing things we do not wish to allow and excluding things we do not wish to exclude. An 'ideal' physics will not have this problem, but the content of this notion is far too vague to be of much use, and one suspects it is essentially circular: an ideal physics will include all and only the physical. There have been attempts to defend this sort of definition, but I am inclined to believe they all succumb in some way to Hempel's problem.⁶

Methodological Definitions: Instead of speaking of a future physics, which might go terribly wrong, or an ideal physics, which remains vague, perhaps we can define physicalism in terms of the methodology of physics. That is, the physical is all that can be acknowledged using the basic methods of verification and theorizing used by current physics [Dowell 2006]. This, of course, is vague as well, and perhaps that is enough reason to reject it, but for my purposes it has another crucial failing: it is epistemic. It defines what should be a metaphysical question in terms of how we discover certain facts about the world. One can do this if one likes, but for a metaphysically realist sense of the physical, which is what I seek, this epistemic element is unacceptable.

Demonstrative Definitions: One might be inclined to say that things are physical if they are sufficiently similar to 'that stuff' where a sufficiently comprehensive sample of dirt, tables, chairs and unequivocally physical

⁶See [Melnyk 1997; Melnyk 2003] for a heroic attempt to defend such definitions by defining physicalism in terms of current physics.

things is demonstrated.⁷ One suspects real problems will emerge with both of the ‘sufficiently’ qualifiers in this definition. It is not at all obvious that one could specify what constitutes sufficient similarity or what constitutes a sufficiently comprehensive (but not too comprehensive) sample without begging all the wrong questions. More obviously, however, these demonstrative definitions assume the falsity of panpsychism—if, contrary to our suspicions, the basic stuff around us is suffused with mentality, the demonstrative definitions embrace the paradigmatically non-physical as physical. Panpsychism should not be ruled out *a priori*, so demonstrative definitions fail [Montero 1999].

There are, no doubt, other possibilities for defining the physical, but these are the most popular or obvious. Many recent authors, in order to avoid counterexamples of the sort I raise above, embrace a definition that is at least in part negative, in the sense that it defines the physical in terms of what it does not include. We are inclined to reject other attempts at definition because we can see how they can go wrong by including paradigmatic examples of the non-physical in the extension of ‘physical’. So we apparently have the tools for creating a negative necessary condition for physicality, and it will enjoy the advantage of stipulatively avoiding the most important counterexamples to its extensional adequacy.⁸ Here, then, is the following negative necessary condition for something’s being physical:

ND: Something is physical only if it does not ineliminably involve mental features.⁹

Variations of ND can be provided by different notions of what mental features seem most contrary to the physical. To put some flesh on ND, we can specify at least two features which should not irreducibly obtain of the physical: phenomenality and intentionality. If a physical thing has a phenomenal property (there is something that it is like to have that property) or an intentional property (a property in virtue of which the thing represents something else) that property had better obtain in virtue of some property or properties that are not intentional or phenomenal. Thus, this more specific version of ND holds that something is physical only if it does not ineliminably involve intentional or phenomenal features.

How far is the move from this necessary condition for physicality to a necessary and sufficient condition? Not far, in my view. For the purpose of our debate, the necessary condition is plausibly all that is needed.¹⁰ Nevertheless, to eliminate the worry that a metaphysical supervenience definition of physicalism is necessarily circular, we can use following definition, borrowed with slight alterations from Crook and Gillett [2001]:

⁷See [Snowdon 1989]. Stoljar [2006] seems to have something like this in mind as well.

⁸For a definition including this necessary condition on physicality, see [Wilson 2006].

⁹See [Davidson 1980: 211]. This is a more metaphysical way of saying what he says in a more formal mode.

¹⁰This is the stance, for example, of [Papineau and Spurrett 1999; Papineau 2002], though in the latter Papineau excludes the fundamentally biological from the purview of the physical as well.

NIP: Something is physical iff it is fundamental, contingent, and is not phenomenal or intentional.¹¹

NIP can, I think, satisfy most intuitions about what should or should not be considered physical, at least in the context of debates in the philosophy of mind.¹²

III.

Many recent philosophers, including early supervenience champion Jaegwon Kim, no longer feel supervenience can be much more than a necessary condition of physicalism. Because it leaves the reason for mind-body co-variation unspecified, it is compatible with numerous non-physicalist doctrines.

... both emergentism and the view that the mental must be physically realized (we can call this “physical realizationism”) imply mind-body supervenience. But emergentism is a form of dualism that takes mental properties to be nonphysical intrinsic causal powers, whereas physical realizationism is monistic physicalism.

[Kim 1998: 12]

I think Kim might be overly pessimistic about the possibilities of supervenience. If emergentism is the reason why a supervenience formulation of physicalism is extensionally inadequate, perhaps we can fix the problem by strengthening supervenience.

Supervenience is a modal notion, and as such it involves the typical ambiguities generated by the possibility of different domains for the modal operators. It is particularly important in this context to distinguish between nomological and metaphysical supervenience, where in the former the necessity operator has only nomologically possible worlds in its domain and in the latter all metaphysically possible worlds are considered. So if the mental supervenes nomologically on the physical, physical indiscernibility entails mental indiscernibility in all worlds with the same laws as ours.¹³ If the mental supervenes metaphysically on the physical, physical indiscernibility entails mental indiscernibility in any metaphysically possible world whatsoever.

¹¹Two notes on this definition. First, I intend ‘something’ in NIP in the broadest possible sense, ranging over objects, properties, events, etc. Second, something is fundamental in this sense iff it is a basic posit that is not reducible to another posit.

¹²A referee for this journal has suggested that ND might contain epistemic elements as well. In particular, ‘ineliminable’ might be hard to analyse purely metaphysically. One suspects that a similar worry can be raised about ‘fundamentality’ in NIP. I have sympathy with this worry, and fear that I cannot do full justice to it here. The same worry holds for ‘irreducibility’, ‘reductively explainable’ and many other notions in the literature, so answering it is a heroic task indeed. It is part of the argument of this paper, however, that necessitation and individuation conditions can do much more work here than has previously been thought. If I am right, then the idea behind NIP would be something like: ‘anything with mental individuation conditions is necessitated by things with purely physical individuation conditions.’ A full defence of this would require another forum, however. Many thanks to this referee.

¹³The relevant notion of indiscernibility needs clarification, but for my purposes it can remain intuitive. For clear and adequate senses, see [Paull and Sider 1992; McLaughlin 1995; Stalnaker 2003b; Bennett 2004].

In enumerating the relevant types of supervenience, I do not consider the third option of logical supervenience which would have the necessity operator ranging over all logically possible worlds. The relevant physicalist thesis would then have it that physical indiscernibility entails mental indiscernibility in all logically possible worlds. This only differs from the metaphysical thesis on the assumption that there are logically possible worlds that are not metaphysically possible. Most people support this assumption, but it is not obvious to me that they should, at least when doing metaphysics. Defining the logically possible in a way that is metaphysically robust—i.e. that doesn't simply posit worlds wherever we have linguistic descriptions or that doesn't reduce logical possibility to mere epistemic possibility—is not an easy task, and the subsequent task of culling the metaphysically possible worlds is even harder. This is one reason I am disinclined to put much weight on the notion of logical possibility. Another reason is that if there is a gap between metaphysical and logical supervenience, the latter is unlikely to play a large role in this debate. Physicalists who do adhere to such a distinction are probably unlikely to think physicalism requires anything as strong as a logical supervenience thesis, and emergentists certainly don't wish to claim anything as strong as logical necessity for emergence laws. For the purposes of this debate, then, logical supervenience seems best ignored.

Emergentism about minds threatens supervenience theses of physicalism because it maintains that everything is made of the physical, but that not all properties are physical*. Some new properties 'emerge' in a law-like fashion at certain levels of organizational complexity, endowing the new structure with features that could not have been predicted from the lower level properties alone.¹⁴ These properties are 'new' in that they bear significantly novel powers or characteristics that do not seem to be derivable from the powers or characteristics of the elements from which they emerge. Nevertheless, they appear given particular configurations of those more basic elements. In this case, properties that are irreducibly mental—in virtue of endowing their bearer with phenomenal feels or intentional thoughts—emerge on purely physical configurations. In at least some sense, they supervene upon those basic characteristics: given the way things work in this world, if you fix the basic configurations, the emergent properties come for free. If they supervene in the same sense of supervenience meant by SVP, then SVP fails because basic mental properties supervene upon the basic physical properties despite the fact that they are not physical*.

An intuitive response to this argument is that given the radical 'newness' of the emergent properties it seems that SVP can be saved by strengthening the type of supervenience it involves. Since properties emerge only given the existence of emergence laws, this line of response continues, they seem to emerge nomologically but not metaphysically. The emergence laws may hold in this world, but there are surely worlds without such laws, and if that

¹⁴For excellent discussions which, among other things, lay out the basic tenets of British Emergentism, see [McLaughlin 1992; Kim 2000].

is the case SVP stands. Following a suggestion by James Van Cleve, we might even be tempted to define emergence as follows:

A property P emerges given a configuration of properties C iff P supervenes with nomological necessity, but not with metaphysical necessity, on C.

[Van Cleve 1990: 222]

If this definition of emergence is adequate, then SVP would seem to remain extensionally sound, excluding emergentism by definition. However, as we will see, one might think Van Cleve's definition is not adequate, because emergence laws could be metaphysically necessary. I will argue that if emergence laws are necessary (and Van Cleve's definition fails), SVP is still sound, because the properties upon which mental properties emerge will no longer be purely physical.

IV.

Some emergentists claim that properties emerge with metaphysical necessity, making the emergence laws examples of the necessary *a posteriori*. Of course it falls to a defender of such a position to explain what is so special about emergence laws. There seems to be no principled reason for maintaining that emergence laws are necessary while the basic laws of physics are contingent. True, the conditions they place on properties and events are synchronic rather than diachronic, but this doesn't seem a reason to think those conditions hold across all possible worlds.¹⁵ If anything, emergence laws seem particularly inapt to be considered necessary because of the strange 'newness' of the emergent properties with respect to their bases.

If an emergentist is going to claim metaphysical necessity for emergence laws, her best strategy is to claim that it is because laws of nature in general are necessary.¹⁶ In a recent paper, Jessica Wilson has argued just that [Wilson 2005]. She maintains that there are persuasive reasons to accept the thesis that the laws of nature are not just well-confirmed generalizations, but necessary truths. The natural laws exemplified in our world might not be exemplified in every world—a world with different stuff entirely will exemplify different laws appropriate to that stuff. Nevertheless, natural laws are necessary if they are laws at all. Wilson then points out that if this is the case, the distinction between nomological and metaphysical supervenience is vacuous. Emergent but non-physical properties do supervene metaphysically on the physical, so SVP and similar supervenience definitions of physicalism fail.

Necessitarianism about natural laws is a contentious thesis and most philosophers who are inclined towards supervenience definitions of physicalism will be apt to elude Wilson's argument by rejecting necessitarianism outright. I think this strategy should be resisted. Instead, I think that

¹⁵It is worth noting that not all forms of emergentism are synchronic. In [O'Connor and Wong 2005] a diachronic, or 'dynamic' notion of emergence is developed.

¹⁶My argument also would work against someone who thinks that only emergence laws are necessary.

by looking at how emergentism interacts with necessitarianism we can gain perspective on both.

Necessitarianism about natural laws has much to recommend it. Although a full exploration of the debate would take us too far afield, let me briefly explain two of the most compelling reasons for believing that the natural laws are necessary:

Property Individuation: Sydney Shoemaker suggests that properties are individuated by their causal natures [Shoemaker 2003]. Put simply, what makes a scientific property what it is is simply what it can enable its bearer to do. This seems pretty intuitive. The property of being negatively charged involves among other things being attracted to things that are positively charged. The property of having a particular mass involves attracting other masses in accordance with the inverse square law. When a property doesn't bestow these causal features, we are inclined to say it is a different property. What more is there, one might wonder, to a property besides these causal features? Since laws simply codify the causal features of properties, the laws give the essential characteristics of the properties and are therefore necessary.¹⁷

Robustness of Laws: What is the difference between a law and a mere generalization? Some philosophers feel that the only way to answer this question in a way that preserves the robustness of laws is by making natural laws necessary. This is supported by two sorts of robustness: epistemic and metaphysical.

Epistemic: Induction is justified only if natural laws are necessary. If laws are just generalizations, there is no reason in principle to expect that they will continue to hold. If laws reflect only contingent patterns of event types, by virtue of what should we expect those patterns to persist? If they are to justify induction, natural laws must be necessary.

Metaphysical: If natural laws are not necessary, then they cannot ground the counterfactuals that we take them to imply. Generalizations are laws only in so far as they are non-accidental, and they are non-accidental only if they support a range of counterfactuals. If natural laws are themselves only contingent, however, then it is unclear that they could support counterfactuals: in a sense, after all, they are themselves accidental. Natural laws must therefore be necessary [Elder 1994; Swoyer 1982].

Despite these reasons to accept necessitarianism, many—particularly those of a Humean bent—will balk. I'm interested here, however, in the supposed entailment between necessitarianism and the extensional inadequacy of supervenience formulations of physicalism. I think even those who find these reasons for necessitarianism persuasive should hesitate before allowing that it applies to emergence laws, but even if they do, it is doubtful that there is a problem for supervenience physicalism.

¹⁷[Wilson 2005; Shoemaker 2003]. There is some question as to whether Shoemaker thinks properties are exhausted by the causal powers they bestow, but all that is needed for this paper is the weaker claim that they are individuated by them.

V.

Even given necessitarianism about laws, emergentism is not a counterexample to SVP. The basic argument is that if emergence laws are necessary, and the emergent properties are 'new' enough to count as non-physical, then the supervenience base will be polluted and will no longer be purely physical.¹⁸ If this is the case, then SVP will judge an emergence dualist world to be non-physical, because duplicating the purely physical properties will not duplicate the world *simpliciter*.

Let's grant to the emergentist that there is a genuinely new emergent property E which emerges necessarily from C. We can suppose, for example, that E is the property of having a phenomenal pain. It seems that any plausible version of necessitarianism will entail that properties are (at least) in part individuated by the properties they necessitate, be those properties emergent or otherwise. This might be because necessitarianism follows from one's view of properties, as in Shoemaker, or it might be because one is forced to this view of properties by one's necessitarianism.¹⁹ Either way, the result is that C is individuated in part by the disposition to give rise to E.²⁰ Is this disposition a physical disposition? It is hard to see how it is, given NIP. By hypothesis, E is a fundamental, mental property, which means that C is essentially characterized by the disposition to produce a fundamental mental property. This does not necessarily mean that C is a mental property, but it does mean that any supervenience base that includes C must include the dispositional property of C to produce E (call this second order property C_{1,1}). Otherwise there would be nothing to distinguish C from C* which is just like C only lacking that disposition. Intuitively, and by the necessary condition stated in NIP, C_{1,1} is not physical. (How could the dispositional property to give rise to a new, non-physical property itself be physical? Even if one wanted, *pace* NIP, to call C itself physical, the property that is nothing but the disposition to give rise to something non-physical surely is not.) Thus, if necessitarianism is true and emergentism is true, there must be non-physical properties in the supervenience base to necessitate the emergence. If this is the case, however, there is no counterexample to SVP: a purely physical duplicate of our world would not have our world as a proper part, because some of the fundamental stuff of our world necessarily involves non-physical properties like C_{1,1}.

The result of the previous argument is really quite intuitive. If it turns out that part of what makes electrons what they are is that they give rise to 'unpredictable' qualitative experiences when in a certain setting, then it seems that electrons are somewhat magical and are at least partly constituted by non-physical dispositions. To make a crude comparison, suppose we found out that our world had schmairs in it. Schmairs are just

¹⁸If the 'emergent' properties are not substantially new, it doesn't seem physicalism should have a problem with them, so even if they supervene on the physical they would not provide a counterexample to SVP.

¹⁹Since Shoemaker's necessitarianism is driven by this sort of view of property individuation, my point is clear in his case. I defend the claim that necessitarianism requires one to embrace certain individuation conditions for properties below.

²⁰This is to say that what makes C that property, and not another very similar type, is that disposition.

like chairs, except that when zombies sit in them they are suddenly conscious. This is just a brute disposition of schmairs. To my mind, the existence of schmairs in our world clearly suggests that the fundamental furniture of our world is not exhaustively describable as physical. Schmairs might not themselves be conscious, but a fundamental, irreducible part of what makes them what they are is the disposition to confer consciousness. This is not purely a physical disposition, and that's why schmairs seem like magic chairs. If electrons, or the basic constituents of our world, have a similarly brute non-physical disposition, then the basic stuff of our world is infused with mentality in a way that is quite surprising. It contains properties that are not in the natural purview of physics, and as such do not belong in a purely physical supervenience base. In such a world, a sort of quasi-panpsychism is true: at least some of the basic stuff in our world is not conscious, but it is infused with mentality in that it is individuated by the brute tendency to produce it.

My argument depends upon the claim that necessitarianism results in a certain view of property individuation. One might object to that claim, however, maintaining that a necessitarian can say that C gives rise to E necessarily, even though C is not individuated by the disposition to do so. Perhaps, one might say, it is just a basic fact that the mental properties emerge on their physical bases in all possible worlds, but not because it is part of the individuation conditions of the base properties. Thus, the argument continues, basic mental properties supervene with metaphysical necessity on a purely physical base, and we finally have a counterexample to SVP [Melnyk 2003].

This response doesn't really outline a coherent possibility. One's necessitarianism might not be driven by a view of property individuation, but the view of property individuation seems to fall out of necessitarianism nonetheless. Given configuration base C and emergent property E, if C gives rise to E in every possible world, it would seem to be part of what individuates C that it does so. C, it seems, is essentially different from C*, which has all the same propensities except that of giving rise to E. This essential difference must ultimately be grounded in something about C. If this is the case, my argument remains intact. Compare the case of mass. One might say that though mass is not defined by the causal propensities it bestows, things having it necessarily obey the inverse square law. But then what distinguishes mass from schmass, which attracts other schmassy things in a way that could be described by an inverse cube law? There must be something about the properties in virtue of which one falls under one law and one falls under the other. One could, perhaps, deny that schmass is a possible property, but that seems speculative and unfounded. What could possibly ground such a necessity? Denying the possibility of schmass or similar properties seems a desperate way out, and if there are such possible properties then the necessitarian must individuate properties in part by the necessary laws that govern them.²¹

²¹For the record, Wilson, Shoemaker and most other necessitarians in this debate do not deny the possibility of properties such as schmass.

There is a lesson to be learned here.²² Some philosophers dismiss supervenience formulations of physicalism because it seems a coherent possibility that the space of possible worlds could be such that all possible worlds with physical bases like ours have dualistic mental properties. There could, according to them, be a sort of modal accident that every world with a certain purely physical base has certain purely mental properties. There are two, related problems here. First, there simply are no modal accidents: the space of possible worlds is necessarily what it is. It makes no sense to say it could possibly be otherwise, since talk of possibilities itself is grounded in the space of possible worlds. One cannot simply posit a total distribution of worlds as a possibility—that distribution either necessarily is, or it necessarily is not. One can, perhaps, locate a possible subset of such worlds where there is an accidental match between the physical properties and the mental properties, but if the match is indeed accidental, there will be other worlds that exist where it does not occur, and there will not, therefore, be metaphysical supervenience. If there is metaphysical supervenience, on the other hand, then it is no accident—the worlds where supervenience fails are ruled out by necessity.²³ If this is the case, my previous arguments apply. What is it that guarantees that these possible worlds are ruled out? It seems there is no other explanation than that it is part of the individuation conditions of the properties in the supervenience base to give rise to the supervening properties.

From what I have argued, it looks as if a necessitarian with emergentist sympathies will be forced either into a type of quasi-panpsychism, where our basic physical properties contain the illicit seeds of mentality at their core, or she will be forced to admit that emergence laws are not necessary after all. In neither case is there a counterexample to SVP. In the first case, a purely physical duplicate of our world would not look anything like our world, since the basic properties that give rise to mentality will not be duplicated, because they are not purely physical. In the second case, emergence laws would be well confirmed generalizations that hold in our world, and perhaps in all neighbouring worlds, but not in all metaphysically possible worlds. If the necessitarian takes this course, however, there is obviously no counterexample to SVP since the mental properties will not emerge with metaphysical necessity but only given the contingent emergence laws.

VI.

Supervenience formulations of physicalism have attracted philosophers because they account for the sense that everything is grounded in the

²²What I have to say here bears important similarities to arguments provided in [Paull and Sider 1992].

²³I have [Melnik 2003] in mind here. That Melnik is making this mistake is shown, I think, by the fact that he thinks this necessary brute dualism is possible, despite the fact that he is a physicalist. But one cannot be a physicalist and believe in the possibility of necessary emergence since if it is possible that physical properties necessarily give rise to dualistic properties, then there is a world such that it is true of that world that emergentist dualism is necessary (i.e. it is true in that world that it is true of every world that dualistic emergentism is true). But if that is the case, it is true of every world, including this one, that dualistic emergentism is true, and physicalism is false.

physical without committing to a particular story of how the varieties of mental properties are physically constituted. As has been noted, by Horgan, Kim and others, it is precisely this generality and lack of detail about psycho-physical relations that prevents supervenience from constituting a real theory of the relationship between the mental and the physical [Horgan 1993; Kim 1998]. It has been the argument of this paper that despite these shortcomings, metaphysical supervenience can still provide an extensionally adequate test for whether or not a particular theory is properly construed as physicalist. This leaves open the possibility, however, that supervenience is extensionally adequate without constituting a definition of physicalism. I think, however, that there is a ‘moral of the story’ which suggests otherwise.

I opened this paper by citing the commonly accepted notion that physicalism is the doctrine that there is nothing over and above the physical, and supervenience is supposed to capture the sense in which one set of properties is nothing over and above the other. The two therefore appear to be a natural fit. Despite this, I think the ‘over and above’ parlance is infelicitous. To say that one thing is nothing over and above the other suggests that the two are not really distinct. But supervenience is only a thesis about what properties are necessitated by others, and there is no prohibition against one property’s necessitating another distinct property. In at least one sense of ‘over and above’ it seems clear that there is nothing to prevent properties that are over and above other properties from nonetheless supervening upon them. Necessitarianism makes this especially clear. If necessitarianism is true, assuming determinism, any state of the world supervenes metaphysically on the previous state.²⁴ This certainly doesn’t make the latter state nothing over and above the previous state. This alone might seem to provide an independent argument that supervenience cannot capture ‘over-and-aboveness’. I think this is true, but the important thing to realize is that physicalism doesn’t require this sense of over-and-aboveness either. This sense of ‘over-and-aboveness’ is associated with property distinctness, and physicalism is certainly not committed to the view that there are no properties distinct from the basic physical properties. Thus, physicalism might still be intimately related to supervenience, but not for the reason that is traditionally supposed: that both are theses about ‘over and aboveness’. In fact, neither is. So what is their relationship, exactly?

Physicalism is, of course, a monistic position and so it maintains that the nature of a single type of stuff and the laws governing such stuff can adequately account for everything in the world. The crucial feature of any non-monistic position is that it maintains that there is a fundamental rift in the nature of things.²⁵ Monism, on the other hand, maintains that everything is of the same nature. This is the sense of ‘over-and-aboveness’ that physicalism requires, and we have seen that this is precisely what supervenience guarantees. Rather than stick with the notion of ‘over-and-aboveness’ which is too closely associated with distinctness, it seems best to

²⁴Thanks to Doug Ehring and David Chalmers for forcing me to think about this point.

²⁵This, incidentally, is why Wilson’s [2005] appeal to theoretical holism cannot succeed in bringing emergence laws back into the fold of necessary natural laws.

speak in terms that more directly capture the spirit of monism. Physicalism, therefore, should be the view that everything (i.e. every property, object, event, etc.) has a physical nature, which is to say that everything is fundamentally grounded in the physical. Supervenience provides a way of making this grounding claim more rigorous and more specific, and it assures the natural homogeneity that monism requires. This is supported by our findings in the case of necessary emergentism. If the emergent properties supervene with metaphysical necessity, they must be metaphysically grounded in the nature of the properties upon which they supervene: they either share an irreducibly mental aspect, in which case a sort of quasi-panpsychism is true, or the emergence laws are not really necessary. Emergent properties are thus only metaphysically new if they acknowledge the sort of rift in reality that is the mark of dualism. In such a case, however, they do not supervene. SVP, therefore, is not only extensionally adequate to the intuitive notion of physicalism, but, it seems, definitive of it.²⁶

Southern Methodist University

Received: April 2006

Revised: January 2007

References

- Alexander, S. 1920. *Space, Time and Deity*, London: Macmillan.
- Bennett, Karen 2004. Global Supervenience and Dependence, *Philosophy and Phenomenological Research* 68/3: 501–29.
- Broad, C. D. 1925. *The Mind and Its Place in Nature*, London: Routledge and Kegan Paul.
- Chalmers, David 1996. *The Conscious Mind*, Oxford: Oxford University Press.
- Chalmers, David 2003. Consciousness and its Place in Nature, in Stich and Warfield 2003: 102–42.
- Chomsky, Noam 1972. *Language and Mind*, New York: Harcourt Brace Jovanovich.
- Crane, T. and D. H. Mellor 1990. There is No Question of Physicalism, *Mind* 90: 185–206.
- Crook, Seth, and Carl, Gillett 2001. Why Physics Alone Cannot Define the ‘Physical’, *Canadian Journal of Philosophy* 31: 333–60.
- Davidson, Donald. 1980. *Actions and Events*, Oxford: Oxford University Press.
- Dowell, Janice. 2006. The Physical: Empirical, not Metaphysical, *Philosophical Studies* Vol. 131: 25–60.
- Elder, Crawford 1994. Laws, Natures and Contingent Necessities, *Philosophy and Phenomenological Research* 54: 649–67.
- Hawthorne, John 2002. Blocking Definitions of Materialism, *Philosophical Studies*. 110/2: 103–13.
- Heil, John, ed, 1989. *Cause, Mind and Reality*, Dordrecht: Kluwer Academic Press.
- Hempel, Carl 1969. Reduction: Ontological and Linguistic Facets, in Morgenbesser, Suppes and White 1969: 179–99.
- Hempel, Carl 1980. Comments on Goodman’s Ways of Worldmaking, *Synthese*, 45: 193–99.
- Horgan, Terence 1993. From Supervenience to Superdupervenience: Meeting the Demands of a Material World, *Mind*. 102/48: 555–86.
- Jackson, Frank. 1998. *From Metaphysics to Ethics*, Oxford: Oxford University Press.
- Kim, Jaegwon 1993 (1990). “Strong” and “Global” Supervenience Revisited, in *Supervenience and Mind*. Cambridge: Cambridge University Press: 79–91.
- Kim, Jaegwon 1998. *Mind in a Physical World*, Cambridge: MIT Press.
- Kim, Jaegwon 2000. Making Sense of Emergence, *Philosophical Studies* 95: 3–36.
- Lewis, David 1999a. *Papers in Metaphysics and Epistemology*, Cambridge: Cambridge University Press.
- Lewis, David 1999b. New Work for a Theory of Universals, in Lewis 1999a: 8–55.
- McLaughlin, Brian P. 1992. The Rise and Fall of British Emergentism, in Beckermann, A., H. Flohr and J. Kim, eds. *Emergence or Reduction?* Berlin: De Gruyter: 49–93.
- McLaughlin, Brian P. 1995. Varieties of Supervenience, in Savellos and Yalcin 1995: 16–59.
- Melnyk, Andrew 1997. How to Keep the ‘Physical’ in Physicalism, *Journal of Philosophy*, 94/12: 622–37.
- Melnyk, Andrew 2003. *A Physicalist Manifesto*. Cambridge: Cambridge University Press.

²⁶For help with earlier versions of this paper, thanks go to the works-in-progress group at SMU, including Doug Ehring, Eric Barnes, Steve Sverdluk, Brad Thompson, Roberta Ballerín, Steve Hiltz and Clayton Littlejohn. Thanks also to John Heil and the NEH seminar on mind and metaphysics. Very helpful suggestions were also made along the way by Torin Alter, David Chalmers, Jaegwon Kim, Andrew Melnyk and Jessica Wilson.

- Montero, Barbara 1999. The Body Problem, *Noûs* 33/2: 183–200.
- Montero, Barbara 2006. Physicalism in an Infinitely Decomposable World, *Erkenntnis* 64/2: 177–91.
- Morgenbesser, Sidney, Patrick Suppes and Morgan White 1969. *Philosophy, Science and Method: Essays in Honor of Ernest Nagel*, New York: St. Martin's.
- O'Connor, Timothy and Hong Yu Wong 2005. The Metaphysics of Emergence, *Noûs*, 39/4: 658–78.
- Papineau, David 2002. *Thinking About Consciousness*, Oxford: Oxford University Press.
- Papineau, David and Spurrett, D. 1999. A Note on the Completeness of Physics, *Analysis*, 59: 25–9.
- Paull, C. P. and Ted Sider 1992. In Defense of Global Supervenience, *Philosophy and Phenomenological Research* 32: 830–45.
- Poland, Jeffrey 1994. *Physicalism*, New York: Oxford.
- Rosenberg, Gregg 2006. *A Place for Consciousness*, Oxford: Oxford University Press.
- Savellos, Elias and Umit Yalcin 1995. *Supervenience: New Essays*, Cambridge: Cambridge University Press.
- Schaffer, Jonathan 2003. Is There a Fundamental Level? *Noûs*, 37/3: 498–517.
- Shoemaker, Sydney 2003 (1980) Causality and Properties, in *Identity, Cause and Mind*. Oxford: Oxford University Press: 206–33.
- Snowdon, P. 1989. On Formulating Materialism and Dualism, in Heil 1989: 137–58.
- Stalnaker, Robert 2003a. *Ways a World Might Be*, Oxford: Oxford University Press.
- Stalnaker, Robert 2003b. Varieties of Supervenience, in Stalnaker 2003a: 86–108.
- Stich, S. and Warfield, T., eds, 2003. *Blackwell Guide to the Philosophy of Mind*, Oxford: Blackwell.
- Stoljar, Daniel 2006. *Ignorance and Imagination*, Oxford: Oxford University Press.
- Stroud, Barry 1987. The Physical World, *Proceedings of the Aristotelian Society*, Supplementary Volume LXXVII: 263–77.
- Swoyer, Chris 1982. The Nature of Natural Laws, *Australasian Journal of Philosophy*, 60: 203–23.
- Van Cleve, James 1990. Emergence vs. Panpsychism: Magic or Mind Dust? in Tomberlin, J. E. eds, *Philosophical Perspectives*, Vol.4. Atascadero, CA: Ridgeview Publishing Company: 215–26.
- Wilson, Jessica 2005. Supervenience Formulations of Physicalism, *Noûs*, 39: 426–59.
- Wilson, Jessica 2006. On Characterizing the Physical, *Philosophical Studies*, 131: 61–99.