

What Kind of Modality Does the Materialist Need For His Supervenience Claim?*

Daniel von Wachter

epost@ABC.de (replace "ABC" by "von-wachter")

Internationale Akademie für Philosophie, Santiago de Chile

This is a preprint version of:

Batthyany, A., Elitzur, A. Eds. (2009). *Irreducibly Conscious. Selected Papers on Consciousness*. Heidelberg: Universitätsverlag Winter

Materialists who do not deny the existence of mental phenomena usually claim that the mental supervenes on the physical, i.e. that there cannot be a change in the mental life of a man without there being a change in the man's body. This modal claim is usually understood in terms of logical necessity. I argue that this is a mistake, resulting from assumptions inherited from logical empiricism, and that it should be understood in terms of synthetic necessity.

Materialists believe that a living man has no other stuff as parts or constituents than the stuff of which that man's dead body consists. Often they combine this view with a certain claim about the modal relationship between the mental and the physical: namely supervenience, which is, roughly, the claim that there cannot be a change in the mental life of a man without there being a change in the man's body. Although I myself happen to be no materialist, in this article I want to discuss which version of supervenience a materialist should assume, and in particular which kind of modality should be used. I shall argue that, contrary to what is generally assumed, supervenience should be spelled out not in terms of logical necessity but in terms of synthetic necessity.

Let me call any materialist view that employs supervenience 'supervenience materialism'. Supervenience materialists accept that mental phenomena *exist*. My imagining Big Ben exists; hence there is something that falls under the

* I wish to express my gratitude to the Free State of Bavaria who made this work possible through the 'Bayerischer Habilitationsförderpreis'. For comments and criticism I thank Martine Nida-Rümelin, Barry Smith, and Mark Textor.

concept of someone imagining Big Ben, hence mental phenomena exist. Likewise there are red impressions in some people's visual fields, there are people who feel depressed, there are sensations of being tickled, there are emotions of being terribly jealous, etc. But supervenience materialists believe that these mental events are nothing over and above certain events in the body of the men in whom they take place. Somehow these events arise on one level of reality and are on a lower level events involving nothing but matter. This is perhaps comparable to something's being liquid, which on the micro level consists in the particles involved being and interacting in a certain way. Something is liquid not because on the micro level all the stuff involved is liquid—which it is not—but because on the micro level there are forces acting between the particles in certain ways. Something's being liquid exists and is different from the acting of forces in certain ways, but yet something's being liquid is nothing over and above forces acting between particles in certain ways. Another suitable analogy may be that what is rightly described as my computer arranging a list of words alphabetically consists, on the micro level, in nothing but particles interacting in certain ways. If mental events are nothing over and above physical events in this way, then there cannot be a copy of the body of a man that does not give rise to a mental life that is exactly like the mental life of that man. That is roughly what is usually meant by saying that the mental supervenes on the physical.

Does this supervenience claim imply *reductionism* about the mental? That depends, of course, on what is meant by 'reduction'.¹ One can mean by 'reductionism about the mental' simply materialism. Reductionism in this sense claims that there is nothing more to a man than matter and it says something about a man's mental life implying that it does not involve anything non-material. Sometimes, however, 'reduction' is used in another sense, with which it is coherent to speak of 'non-reductionist materialism'. This kind of reductionism is about *concepts*. It claims that psychological concepts, such as 'x is depressed', can be defined in terms of physical concepts, or can be replaced by non-psychological concepts, e.g. through functional definitions (i.e. definitions in terms of causal roles). Non-reductionist materialism then is the view that there is nothing more to men than matter but that talk about one's mind cannot be reduced to talk about one's body because any description of a man's body in physical terms fails to convey what his mental life is like.

¹ For a helpful distinction between various kinds of reduction see (Searle 1992, 112-116).

Varieties of supervenience

Let me discuss some varieties of supervenience. According to one version of supervenience, which I call '*strong supervenience*', there cannot be a difference between two things in psychological respects without there being a difference in physical respects. In other words, 'any two things that are exact physical duplicates are exact psychological duplicates as well' (Kim 1998). This *local*² supervenience claim entails *global strong supervenience*:³

Any two possible worlds that are physical duplicates are duplicates simpliciter.

This implies not only that, as a matter of fact, there are no souls but also that the existence of souls, ghosts, angels, etc. is *impossible*. To see this consider a being, A, with a soul and a body. There could be a body, B, exactly like the body of A except that it does not have a soul. But then, contrary to strong supervenience, there could be two things that are exact physical duplicates but not exact psychological duplicates. Hence strong supervenience entails that the existence of beings like A, which have a soul, is impossible. This is a very ambitious claim, because even to many who believe that there exists, as a matter of fact, nothing non-material, the existence of souls, ghosts, angels, or God seems *possible*.

A weaker version of supervenience claims just that anything that has all the physical features of *something in our world* (that is, it is made of exactly similar material stuff and it has all the same material properties) has also all its psychological features. So *weak supervenience* is the following claim:

There cannot be something that exactly resembles something actually existing in all physical respects but that does not have all its psychological features.

That is to say, for any existing thing *x* of which some description '*M*' in psychological terms is true (e.g. *x* feels depressed, *x* is in love with Mary, etc.), there is a true description '*P*' in physical terms (e.g. *x* has mass 60 kg, and *x* has charge so-and-so, etc.) such that it is true that *it is impossible that there is something that is P and not M*. It is left open by weak supervenience whether there could be something that exactly resembles something existing but that involves *extra* immaterial stuff and features and hence is no psychological duplicate.

² Global supervenience says something about physical duplicates of worlds, local supervenience says something about physical duplicates of things. Local supervenience entails global supervenience, but under some assumptions global supervenience does not entail local supervenience (as argued by Chalmers 1996, 38). For our purposes, however, the difference does not matter.

³ This formulation is taken from (Jackson 2000, 11). Jackson, however, does not hold this view but prefers the weaker view quoted below. Kim defends strong supervenience.

Another formulation of weak supervenience, that expresses the idea of something 'extra' differently, employs the concept of *x being a minimal physical duplicate of y*, which means that x is what you get when you duplicate y in all physical respects and 'stop right there' (Jackson 2000, 12). Using Jackson's words, global weak supervenience is the claim that 'any world which is a *minimal physical duplicate of our world is a duplicate simpliciter of our world*'⁴.

Weak supervenience denies that there are ghosts or other immaterial things that are independent of matter, because if there were ghosts then there could be a world just like ours except without ghosts; but this world would be a minimal physical duplicate of our world whilst being no duplicate simpliciter of our world; this possibility is ruled out by weak supervenience; hence weak supervenience entails that there are no ghosts. Given the assumption that if a man has a soul then there could be a body like that man's without a soul, weak supervenience denies also the existence of souls.

One could also be a materialist about human beings but leave open whether there are ghosts. A supervenience claim compatible with this is the claim that there could not be the copy of a body of a man which does not give rise to a mental life exactly like the mental life of that man. In other words, there could not be something that resembles a certain man exactly in all physical aspects without resembling him in all psychological aspects too. However, in the following discussion of supervenience I shall work with weak supervenience as defined above.

Logical supervenience

Supervenience materialists usually hold that the mental is *logically* supervenient on the physical, that is, it is *logically* impossible that there exists something that exactly resembles something actually existing in all physical respects but that does not have all its mental features. I shall now distinguish three kinds of logical supervenience of the mental on the physical and criticise the three claims briefly. The three kinds of supervenience are distinguished by whether the modal claim is based on (1) *a priori* deducibility, (2) on 'Water is H₂O' modality, or (3) on whether mental concepts can be functionalized. I shall argue that materialists should assume not logical supervenience but a different kind of supervenience.

⁴ (Jackson 2000, 12). Also (Chalmers 1996, 39) avoids that supervenience entails the impossibility of ghosts by defining it as a thesis about *our* world.

A priori deducibility

One could hold that the mental descriptions of a man can be derived *a priori* from the physical description of that man and that therefore mental concepts can be defined in terms of physical concepts. That is, one could hold that the mental description of a man can be derived from the physical description of that man as it can be derived from 'Jones is a bachelor' that Jones is unmarried, or as it can be derived from 'A caused B' that the A occurred earlier than B. In the former case (cf. 'Jones is a bachelor') mental descriptions could be derived from physical descriptions because mental concepts are complex concepts and have nominal definitions in physical terms; in the latter case (cf. 'A caused B') mental descriptions could be derived from physical descriptions by thinking about the things to which the descriptions refer. In either case, the claim here would be that mental concepts can be defined in physical terms, and that statements about the mental life of a man can be translated into statements about the body of that man. Searle calls this 'logical or definitional reduction' (Searle 1992, 114).

Frank Jackson (Jackson 2000, 80-83) has argued that 'physicalism is committed to the in principle *a priori* deducibility of the psychological from the physical' (83). How does he accommodate the fact that it seems obviously impossible to derive by thinking alone from a description of a man's brain in physical terms what the mental life of that man is like? Jackson's argument employs the example of how from (1) 'H₂O covers most of the Earth', (2) 'Water covers most of the Earth' can be derived. He points out that (2) can be derived *a priori* from the conjunction of (1) and (1a) 'H₂O is the watery stuff of our acquaintance'. (1a) gives the 'contextual information' that is required for the deduction. Jackson claims that according to physicalism the contextual information required for the deduction of the psychological from the physical 'can be given in physical terms' (83), and that therefore physicalism entails that the psychological is deducible *a priori* from the physical.

I reply that, regardless of how plausible it is that the psychological is deducible from the physical in the way Jackson describes, he fails to address the crucial point. Of course, if materialism is true and if you know what kind of brain state underlies what kind of mental state, then from this information, which you may call 'contextual information', given a description of my brain in physical terms, you can deduce what my mental life is like. But the point is that you cannot deduce it from the description of my brain *without* this contextual information. No description of my body in physical terms tells you whether I have a red image in my mind, or whether I have a headache, or whether I am thinking hard about whether 371 is a prime number. By saying something about my body you never say anything about my mental life. If one talks in physical terms one does *not* mean anything about the mental. Let me quote some authors

who have made this point. Richard Swinburne writes: 'No description of the public physical world entails that when you shine a certain light, I will have a blue image; or when you prick me with a needle, I will feel pain.' (Swinburne 1997, 315). John Searle writes: 'No description of the third-person, objective, physiological facts would convey the subjective, first-person character of pain, simply because the first-person features are different from the third-person features.' (Searle 1992, 117) David Chalmers makes the same point by arguing that there is no contradiction in the description of a zombie: there is no contradiction in the description of the situation where there is besides me 'someone or something physically identical to me (or to any other conscious being), but lacking conscious experiences altogether' (Chalmers 1996, 94). In this sense, there is not what Moore (Moore 1922) calls a 'conceptual connection' between the physical and the mental.⁵ I conclude that logical supervenience involving *a priori* deducibility of the psychological from the physical is to be rejected.

'Water is H₂O'

Recognizing that there is no conceptual connection between the psychological and the physical, some materialists put their hope on *a posteriori* necessity. The basic idea is that the relationship between the mental and the physical resembles the relationship between being water and being H₂O. The psychological is conceptually independent from the physical as being water is conceptually independent from being H₂O; and the necessary connection between the psychological and the physical is like the necessary connection between being water and being H₂O. The modality employed in the supervenience claim 'It is impossible that there is something to which the physical description P but not the mental description M applies' is of the same type as the modality in Kripke's 'Water is necessarily H₂O'. To the zombie argument against materialist supervenience it can be replied that although a description of my zombie twin is not contradictory, we can nevertheless assume that the existence of my zombie twin is impossible as it is impossible that water is not H₂O (Chalmers 1996, 131).

The trouble with this view is that psychological concepts simply are not like the concept of water. The concept of water is what I call *a paradigm-based concept*, i.e. a concept that only applies to something that resembles certain paradigm cases in a certain respect. Imagine that before it is discovered that water is H₂O people travel to a planet where they find stuff which looks just like water and which they therefore assume to be water. Then it is discovered that all the stuff

⁵ Moore pointed out that there is no 'conceptual connection' between the moral and the non-moral properties of a situation and that therefore moral properties do not logically supervene on non-moral properties.

in our rivers and lakes is H₂O, but that the stuff on the other planet has some different chemical structure. Putnam and Kripke suggested that in that case people would say that it turned out that the stuff on the other planet was not water. Whether something is water depends on whether it resembles paradigm cases of water, namely the liquid stuff in our rivers and lakes, in its chemical structure. *A posteriori* necessary statements, such as 'Water is H₂O', state what feature something must have in order to resemble the paradigm cases for a certain paradigm-based concept so that the concept applies to it.⁶

Psychological concepts, however, are not paradigm-based concepts. Whether something is pain does not depend on whether it resembles paradigm cases. Anybody who is in a mental state with the phenomenal quality that we mean when we talk about pain, is in pain, regardless of whether he has a body that is in a state similar to the state of the bodies of people that are paradigm cases of people with pain. Compare this with a paradigm-based concept like 'water': it is *not* the case that anything that is as we have it in mind when we talk about water—i.e. anything that is liquid, transparent, etc.—is water. We would *not* stop calling something pain if we discovered that it is based on quite a different brain state than pain in paradigm cases, or on no brain state at all.

Chalmers makes the same point by arguing that for psychological concepts 'the primary and secondary intensions coincide' (Chalmers 1996, 133). By the primary intension he means that which 'fixes reference in the actual world' (132; cf. 57), by the secondary intension he means that which fixes reference in counterfactual worlds. So the primary intension of 'water' picks out the watery stuff in a world; the secondary intension of 'water' picks out H₂O in every counterfactual world. 'The difference between the primary and secondary intensions for the concept of water reflects the fact that there could be something that looks and feels like water in some counterfactual world that in fact is not water, but merely watery stuff. But if something feels like a conscious experience, even in some counterfactual world, it *is* a conscious experience.'⁷

I conclude that 'Water is H₂O'-modality does not help the supervenience materialist.

Functionalism

Recognising that psychological concepts and physical concepts are not conceptually connected and are not related like 'water' and 'H₂O', supervenience materialists have put their hope on functionalism. Jaegwon Kim

⁶ For a thorough discussion of "Water is H₂O" see (Chalmers 1996, 56-65) or (Jackson 2000, 39 and 46-52). Both authors suggest that "water" has two different intensions.

⁷ (Jackson 2000, 46-52) gives a similar account of *a posteriori* necessity. (Jackson 1980) argues that the materialist cannot appeal to *a posteriori* necessity.

(1998), for example, employs functionalism in his defence of reductionist materialism (i.e. materialism with *conceptual* reduction). Kim's materialist theory of the mind involves three steps (Kim 2002, 642): (1) Reconstruct the psychological concept as a functional concept, i.e. define it in terms of causal role ('M is the property of having some property that causes such-and-such and is caused by such-and-such'). (2) Find the property that fits the causal role specified by the functional definition. (3) Give a theory that explains how that property performs the specified causal task. The result is the claim that the psychological concept and the predicate that is used to refer to say which property plays the causal role described by the functionalized psychological concept refer in fact to the very same thing, and that thing is material.

For example, to functionalize the concept of pain in one's leg one might propose to define it as that which is typically caused by injury to one's leg and which typically causes one to believe that the leg has been injured (example by Lowe 2000, 45). A paradigm example for functionalization is the definition of 'heat' as that which causes or underlies heat sensations. It has been discovered that it is the movement of molecules that causes heat sensations. Consequently we redefine 'heat' as that phenomenon which in fact plays the role described in the functional definition. Thus heat becomes mean kinetic energy of molecules. Searle calls this kind of redefinition 'ontological reduction' (Searle 1992, ch. 5).

The trouble is that psychological concepts are not like the concept of heat. As Searle has pointed out (1992, 120), when we talk about heat we are not interested in the sensation but in the underlying causes. Hence once we have discovered the underlying phenomenon we redefine heat in terms of that phenomenon. But when we use psychological concepts we are interested not in some phenomenon that causes or underlies the mental event but in the mental event itself. When we talk about pain we mean the subjective experience of pain, not in what caused it. Therefore, even if we were to discover something that caused it we would not redefine 'pain'. That is why psychological concepts cannot be functionalized.⁸

Furthermore, even if psychological concepts could be functionalized, this would not support the view that there are no subjective experiences or that they are in fact to be identified with material events. Despite the reduction of heat to kinetic energy of molecules, there are heat sensations and there is movement of molecules, and these are two different things. Likewise, if psychological concepts could be functionalized there would still be subjective experiences

⁸ This argument against functionalism is Searle's (1992) as well as Swinburne's (1997, 59). Swinburne points out that "we mean by 'my having a red after-image' the event which causes a certain sensation, but the sensation itself". For a thorough criticism of functionalism see (Foster 1991, ch. 3).

whose nature would not be captured by descriptions in physical terms. There would still be descriptions of one's mental life that capture its subjective character, and these descriptions would not be conceptually reducible to descriptions in physical terms. Functionalization does not help the materialist.

I conclude that the prospects for logical supervenience are dim. Further, if logical supervenience is false then the mental cannot be *reduced* conceptually to the physical. As I have said above, one can mean by the claim that the mental cannot be reduced to the physical just the materialist claim that there is nothing immaterial to a man, but often by 'reduction' philosophers mean conceptual reduction, i.e. a way in which psychological concepts can be defined in terms of physical concepts or in which psychological statements can be transformed into physical statements. In this latter sense it makes sense to talk of 'non-reductionist materialism'. Conceptual reduction of the mental to the physical would involve one of the three kinds of logical supervenience that I have discussed. But there is no bridge from psychological concepts to physical concepts.⁹

Logicism

Is materialism false if logical supervenience is false? Chalmers, like many others, thinks so: 'The failure of logical supervenience implies that some positive fact about our world does not hold in a physically identical world, so that it is a further fact over and above the physical facts.' (Chalmers 1996, 124) I call this view *mind-body-logicism*. The argument for mind-body-logicism is that if materialism is true, and hence there is nothing immaterial, then mental events are based on physical events and are nothing over and above these. They are a surface phenomenon of the physical, or they arise just at a certain level of reality. At any rate, if they are nothing over and above the physical, then whenever there is a man's brain in a certain state there cannot be a brain that is in the same state but does not give rise to the same mental phenomena. Mental phenomena are linked to the physical by necessity of the strongest type. Necessity of the strongest type is logical necessity, hence if the mental is not logically supervenient on the physical, then the mental is something over and above the physical and hence materialism is false.

I shall argue now that mind-body-logicism is false, i.e. that materialism is compatible with the falsity of logical supervenience. (I believe that materialism is false but I shall not bring in this claim here.) Mind-body-logicism is a consequence of logicism, i.e. the view that logical modality is the strongest kind

⁹ For detailed defence of the irreducibility of the mental see (Chalmers 1996, chs. 3-4), (Searle 1992, ch. 5), and (Swinburne 1997).

of modality and the modality which modal questions in philosophy are generally about. I think logicism is a mistake. Let me explain. Before I say how logicism became generally accepted and why we should reject it, I should say what is meant by 'logical modality'.

Often philosophers explain that they mean by a statement being 'necessarily true' that it is 'true in all possible worlds'. I see no reason to believe in the existence of worlds other than ours, and I do not see how what is the case in other worlds should determine what is possible in our world. Furthermore, putting aside disbelief in possible worlds, saying that being necessarily true means being true in all possible worlds does not say anything about which possible worlds there are. For example, it does not say whether there are possible worlds in which two rocks do not attract each other. It is usually assumed that there are such worlds, but only because it is assumed that possible worlds are *logically* possible worlds. What we still need then is an explanation of what logical possibility is.

The clearest definition of logical modality is this: A statement is logically necessary if and only if its negation is self-contradictory. Such a statement can also be called a 'logical truth' or 'tautology' or 'necessarily true'. A statement is logically possible if and only if its negation is not self-contradictory. A self-contradictory statement is one that says something and denies it, e.g. 'The rose is red and not red' or 'The married man over there is unmarried'. One can further distinguish between *overt* logical truths, such as 'Married men are married', and *disguised* logical truths, such as 'Bachelors are unmarried' (interpreted as 'Unmarried men are unmarried').

The standard view today is that logical necessity is the strongest type of necessity and the type of necessity that is relevant for modal philosophical questions, such as the question whether the mental supervenes on the physical or the question whether backward causation is possible. This view is the heritage of logical empiricism. The logical empiricists, in the beginning of the 20th century, reacted against the phenomenologists' project to discover modal truths about the world, such as 'Nothing can be green and red all over' or 'Every tone must have a pitch' (cf. (Scheler 1916, ch. II), (Reinach 1914), and (Smith 1992)). The phenomenological method, which the phenomenologists assumed to have been the method of many great philosophers, was a method to discover modal truths through 'Wesensschau', which means, roughly, through thinking hard about something. The logical empiricists rejected this because they believed that all our knowledge about the world comes through sense experience, and they took the phenomenologists to claim that we can have knowledge about the world without sense experience. To defend their rejection of the phenomenologists' modal claims they argued that these modal claims 'are not about the world'. These modal claims in fact are tautologies, they are

analytic sentences, like 'Bachelors are unmarried'; they spell out only the rules governing the usage of words (cf. Schlick 1930).

In a philosophical *coup d'etat* the logical empiricists substituted necessity by analyticity and decided to use 'impossible' in the sense of 'self-contradictory'. They declared analytic statements like 'bachelors are unmarried' to be the paradigms of necessity. Logicism was exported into Anglo-Saxon philosophy, e.g., by A.J. Ayer; phenomenology was never exported. As the phenomenologists died out, opposition to logicism died out. Today logicism is generally accepted and the alternative is unknown to many. Most philosophers today try to answer modal questions by looking for contradictions. The question whether backward causation is possible, for example, is often taken to be the question whether statements describing cases of backward causation are self-contradictory. Similarly, the question whether the mental supervenes on the physical is taken to be the question whether there is a contradiction in the description of a zombie (cf. Chalmers 1996, 94-99).

I suggest that this is wrongheaded. To ask whether a description describes something *impossible* is not to ask whether it is *self-contradictory*. Take two predicates, A and B, that are semantically independent from each other, that is, they are not defined in terms of each other and hence 'A' is not used in order to say of something that it is (or is not) B. ('Bachelor' and 'unmarried', for example, are *not* semantically independent from each other because 'bachelor' is used in order to say of something, amongst other things, that it is unmarried.) For any two such predicates the question arises whether it is possible that there is something to which they both apply; that is, whether there is something that has the properties to which they refer. We know that many properties are combinable, e.g. we know that the objects of '3 kg' and 'red' are combinable because we know that there are red things that are 3 kg in mass. But we have little reason to assume that *all* properties are combinable. At any rate, for any two semantically independent predicates, A and B, either the claim 'There can be something that is A and B' or the claim 'It is impossible that there is something that is A and B' is true. Such claims are most properly called *modal* claims. We should claim back the words 'modal', 'possible', etc., for their proper applications. They are not to be spelled out in terms of contradiction. Contradiction is a different matter.

For predicates that are defined in terms of each other no modal questions arise. The question whether there *can* be a married bachelor does not arise because the word 'bachelor' in English is used to say of something that it is unmarried. It is one question whether two predicates contradict each other, and another question, if they do not contradict each other, whether there can be something to which they both apply.

There are modal questions and true or false modal claims because we human beings have the ability to construe things in our mind and to construe descriptions of things. For any such description it is either true or false that there exists something to which it applies, and it is either true or false that the existence of something to which it applies is possible.

In order to distinguish what I mean by 'possible' etc. from what logicians mean by it I use the terms '*synthetically* possible' etc. To use the term 'metaphysically possible' would be misleading because it is often used for 'Water is H₂O'-modality. A synthetic modal claim is a claim of the type 'Necessarily/possibly p', meant not as a claim about whether p is logically necessary (or 'analytic') but as a modal claim as I have described it. By saying that a proposition p is synthetically necessary I mean that p is not logically necessary (analytic) and that 'Necessarily p' is true. By saying that a proposition p is synthetically possible I mean that p is not logically necessary and that 'Possibly p' is true.

Logicians claim that logical necessity is necessity in the strongest sense. Necessity in any other sense is called 'natural' necessity and is taken to be necessity in a weaker sense (e.g. Chalmers 1996, 41). The argument for this is that 'the class of natural possibilities is [...] a subset of the class of logical possibilities' (Chalmers 1996, 37) and the class of logical necessities is a subset of the class of natural necessities. This is derived from a definition of 'natural necessity' which includes both logical and synthetic necessity. I object that such a concept of 'natural necessity' is too much a mixed bag. Nothing that is logically necessary is synthetically necessary, and nothing that is synthetically necessary is logically necessary, and logical necessity and synthetic necessity have so little in common that it is not useful to subsume them under one concept of 'necessity'. To say that logical necessity is stronger than synthetic necessity is as uninformative as saying that redness is stronger than coherence because the class of statements that claim that something is red is a subset of the class of coherent statements and the class of incoherent statements is a subset of the class of statements that do not claim that something is red. Modal questions that arise in philosophy, such as whether backward causation is possible or whether the mental supervenes on the physical are questions, not about what is coherent but about, what is possible; that is, they are to be understood in terms of synthetic necessity. And there is no reason for saying that this is not necessity in the strongest sense.

Materialism without logical supervenience

Now we can reconsider the claim that the mental supervenes on the physical. There are true psychological descriptions of men, such as 'Mary imagines Big Ben', and there are true physical descriptions of men, such as 'Mary's body is in

state P'. Physical descriptions are semantically independent from psychological descriptions, i.e. there is never a contradiction between a physical and a psychological description. For various physical descriptions P1, P2, etc., and various mental descriptions M1, M2, etc., the question arises whether there can be a man to which P1 but not M1 applies, etc. If the materialist's assumption is that there is nothing more to a man than matter were true then for every true psychological description of a man, M, there would be a physical description of that man, P, such that it is true to say that there cannot be something to which P but not M applies. This is the idea underlying materialist supervenience. Logicians assume that the 'cannot' in this claim is to be understood in terms of 'logical necessity'. I suggest that it is to be understood in terms of synthetic necessity.

The resulting materialist view is *non-reductionist* in the sense that it does not claim any reduction of psychological *concepts*. It does not claim that psychological concepts can be functionalized or that they can be defined in terms of physical concepts. The arguments put forward by dualists (e.g. Swinburne 1997, 313-317; Chalmers 1996, ch. 3) designed to show that the mental cannot be reduced conceptually do not refute non-reductionist materialism as I construe it here.

Consider what sort of relationship between psychological and physical descriptions of a man we should expect. On the materialist assumption mental phenomena arise where matter is composed in certain complex ways, like in a human brain. If you compose matter in certain ways the thing starts to move and to talk and think and feel, a bit like when you compose matter in certain ways you produce a computer that does calculations or simulates airplanes. Mental phenomena, like the phenomenon of running computer programs, emerge at a certain level of complexity of matter. We have psychological concepts because we have a mental life and learn to talk about it. We have physical concepts because we have sensual experiences and data from measurement instruments, such as scales, through which we can pick out properties of things we are in contact with. Now, why should there be a conceptual connection between psychological and physical concepts in this materialist scenario? There could be one, but there need not be one. First, we should not expect in this materialist scenario that psychological concepts are defined in terms of physical concepts. Hence there are no contradictions between psychological descriptions and physical descriptions. Second, it may even be that we have no idea what sort of material thing would give rise to what sort of mental phenomena. Nevertheless it would be true for some physical description P and some psychological description M that there cannot be something to which P but not M applies. The mental would supervene on the physical, but not logically but synthetically.

Let us consider Chalmers's zombie argument in the light of this (Chalmers 1996, 94-99). Chalmers asks whether it is 'logically possible' that there is 'something physically identical to me (or to any other conscious being), but lacking conscious experience altogether' (94). He argues that a zombie is logically possible because there is 'no contradiction in the description' of the situation where there exists he as well as his zombie friend. From this he concludes that materialism is false: 'The failure of logical supervenience implies that some positive fact about our world does not hold in a physically identical world, so that it is a further fact over and above the physical facts.' (124)

I reply that the logical possibility of a zombie does not entail that materialism is false; only the synthetic possibility of a zombie would entail the falsity of materialism. It doesn't follow from the fact that the description of a zombie is not self-contradictory that the existence of a zombie is possible. It may be that we consist only of matter, i.e. of protons, neutrons, and the like, but that there are true descriptions of us in terms that cannot be defined in terms of protons etc. and that are not linked conceptually to descriptions in terms of protons etc.; we do not see the connection between the psychological and the physical by thinking. In that case the description of a zombie would be consistent and the existence of a zombie would be (synthetically) impossible.

Some (synthetic) impossibilities are more difficult to know than others. Sometimes it is immediately clear to us that something is impossible. We see it immediately when we think about the things involved. For example, it is easy to see that there cannot be something that is green and red all over. Quite clear but still controversial it is, e.g., that one cannot be guilty for something one did not do freely. A bit more difficult is it to know whether there can be something that has mass but no charge, or whether there can be something that has charge but no mass. If the mental supervenes on the physical then this is a modal truth that we do not know by thinking, we do not know it a priori. In order to defend (synthetic) supervenience one needs independent support for materialism. I myself do not think there is much such support, I claim only that the supervenience claim makes perfect sense and that there can be true modal claims of this type whose truth we do not know a priori.

Can the materialist defend supervenience against the objection that if supervenience were true we should be able to know it by thinking? I think he should defend it along the following lines. We acquire modal knowledge through our acquaintance with the things involved. We find out that there cannot be a tone without pitch through thinking about tones and pitch. We can find out something about tones and pitch *through thinking* because we have heard tones. Now, supervenience involves things we have very little acquaintance with, namely brain states. We fail to see that the mental supervenes on the physical because we have never seen protons, electrons, etc.,

and we have never seen what happens when we compose particles in the way in which they are composed in brains. Maybe, if neuroscience makes much progress, one day we shall have a fuller picture of what happens in the brain so that we begin to see why brains give rise to consciousness. We fail to see that the mental supervenes on the physical as we failed to see before we had computers that certain complexes of particles give rise to simulations of air planes.

Of course, there are strong objections against supervenience. I, for example, would defend the claim that we know enough about matter and about consciousness to be justified in believing that no complex of matter would give rise to consciousness. I think we have positive reason to believe that the existence of a zombie is possible, but in order to defend the possibility of a zombie it is not enough to argue that the description of a zombie is not contradictory. Similarly, I think there is reason to believe that it is possible that I shall exist after my death and that this is reason to believe that we do not consist just of matter. Again, the possibility in question is not logical possibility but synthetic possibility.¹⁰ But this is not the place to defend these claims. Here my claim is only that the materialist has to defend not logical but synthetic supervenience of the mental on the physical and that this claim makes perfect sense and is not refuted by arguments showing that certain descriptions are not self-contradictory.

References

- Chalmers, David J. 1996. *The Conscious Mind*. Oxford UP.
- Foster, John. 1991. *The Immaterial Self: A defence of the Cartesian dualist conception of the mind*. London: Routledge.
- Jackson, Frank. 1980. 'A note on physicalism and heat'. *Australasian Journal of Philosophy* 58:26-34.
- — —. 2000. *From Metaphysics to Ethics*. Oxford UP.
- Kim, Jaegwon. 1998. *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation*. The MIT Press.
- — —. 2002. 'Précis of *Mind in a Physical World*'. *Philosophy and Phenomenological Research* 65:640-643.
- Lowe, E. J. 2000. *An Introduction to the Philosophy of Mind*. Cambridge UP.
- Moore, G.E. 1922. *Philosophical Studies*. London: Routledge.

¹⁰ (Swinburne 1997, 322-332) gives an argument for dualism using the premise that it is possible that I shall exist after death. I think that the argument is sound if this premise is understood in terms not of logical possibility (as Swinburne assumes) but in terms of synthetic possibility. I sketch another argument for dualism in my (1999).

- Reinach, Adolf. 1914. 'Über Phänomenologie'. In *Sämtliche Werke*, edited by K. Schuhmann and B. Smith. München, Hamden, Wien: Philosophia Verlag, 1989, 531-550.
- Scheler, Max. 1916. *Der Formalismus in der Ethik und die materiale Wertethik*. 6. ed. Bern; München: Francke Verlag, 1980.
- Schlick, Moritz. 1930. 'Is There a Factual Apriori?' (original: 'Gibt es ein materiales Apriori?'). In *Readings in Philosophical Analysis*, edited by H. Feigl and W. S. Sellars. New York: Ridgeview, 1983.
- Searle, John R. 1992. *The Rediscovery of the Mind*. Cambridge, Mass.: MIT Press.
- Smith, Barry. 1992. 'An Essay on Material Necessity'. In *Return of the A Priori*, edited by P. Hanson and B. Hunter. *Canadian Journal of Philosophy, Supplementary Volume 18*.
- Swinburne, Richard. 1994. *The Christian God*. Oxford: Clarendon.
- — —. 1997. *The Evolution of the Soul (Revised Edition)*. Oxford: Clarendon Press.
- Wachter, Daniel v. 1999. 'Ein bemerkenswerter Unterschied zwischen Personen und Schiffen'. In *Vielfalt und Konvergenz der Philosophie*, edited by E. Runggaldier and W. Löffler. Vienna: Hölder-Pichler-Tempsky, 243-247.