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# Supervenience and Psycho-Physical Dependence

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*RÉSUMÉ : Jaegwon Kim a montré de façon convaincante que les versions habituelles de la survenance décrivent en fait de simples relations de covariance et laissent échapper l'idée de dépendance. Mais puisque la dépendance du mental à l'endroit du physique est requise même par la version la plus faible du physicalisme, il semblerait bien que les notions actuelles de survenance n'accomplissent pas ce qu'on attendait d'elles. Je soutiens qu'en concevant la survenance dans une optique davidsonienne, comme une relation entre prédicats plutôt qu'entre propriétés, on évite les inconvénients des versions plus familières, et que l'on donne prise, de la sorte, à un usage physicaliste de la survenance.*

Debates about supervenience have cooled off over the past few years. Those that remain tend to focus either on technical points concerning the modal force of—or connections between—different formulations of the relation, or on issues of reduction. Strangely enough, the more interesting question (at least for its application to the philosophy of mind) has received little attention. The question is whether psycho-physical supervenience expresses the dependence of the mental on the physical. In light of the fact that many philosophers believed supervenience could capture a form of physicalism, and that the dependence of the mental on the physical is a minimal condition for such physicalism, this lack of attention is very surprising. Of course, how we answer this question will depend largely on how supervenience is understood and formulated. While the *concept* of supervenience captures the idea of dependence (after all, together with the denial of reduction, that is what it was introduced to

do), it is not clear that the existing *formulations* of this relation live up to the concept behind them. Jaegwon Kim has argued convincingly that the standard formulations of supervenience (strong, weak, and global) fail to capture the idea of psycho-physical dependence they were initially taken to express. While I think Kim is essentially correct about this, there is room for elaboration and debate on this topic. The following discussion is divided into two parts. In the first section, I review Kim's reasons for denying that the standard forms of supervenience describe relations of dependence. In the second part, I question Kim's rejection of Davidson's version of weak supervenience as a candidate for the expression of psycho-physical dependence. More specifically, I argue that Kim's failure to appreciate the difference between conceiving of the relation as one that holds between properties and one between predicates reopens the possibility that Davidson's version of supervenience describes a relation of dependence.

### 1.

The claim that psycho-physical supervenience expresses the dependence of the mental on the physical was, according to Kim, made for the first time in Davidson's characterization of supervenience in "Mental Events":

Although the position I describe denies there are psychophysical laws, it is consistent with the view that mental characteristics are in some sense dependent, or supervenient, on physical characteristics. Such supervenience might be taken to mean that there cannot be two events alike in all physical respects but differing in some mental respect, or that an object cannot alter in some mental respect without altering in some physical respect. (Davidson 1980, p. 214)

In two influential articles (Kim 1993a, 1993c), Kim examines whether the property covariation described by psycho-physical supervenience can be seen to include or entail a dependency relation as Davidson claims. However, Kim does not limit his investigation to Davidson's formulation of the relation. Instead, he offers three characterizations of his own which have since become the recognized standards, one of which, he claims, is equivalent to Davidson's formulation. They are: "weak," "strong," and "global" supervenience:

1. *A weakly supervenes on B* if and only if necessarily for any property F in A, if an object x has F, then there exists a property G in B such that x has G, and if any y has G, it has F. (Kim 1993a, p. 64)
2. *A strongly supervenes on B* just in case, necessarily, for each x and each 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. (Ibid., p. 65)

3. A *globally supervenes* on B just in case worlds that are indiscernible with respect to B ("B-indiscernible," for short) are also A-indiscernible. (Ibid., p. 68)

The difference between weak and strong supervenience is that there is a second modal operator at work in the latter. Weak supervenience guarantees the relation specified between the two classes of properties holds within one possible world only, whereas the two modal operators in the characterization of strong supervenience guarantee the relation holds *across* possible worlds. To use Kim's example, if being good weakly supervenes on being courageous, benevolent, and honest, then although every person in this world who exemplifies these three properties is necessarily good, there may be some other possible world in which some such person is evil (ibid., pp. 58-60). If goodness strongly supervenes on these base properties, then anyone who possesses them must be good in any world. Finally, global supervenience speaks of the relation as holding generally between "worlds." For example, it claims that if the moral globally supervenes on the descriptive, then worlds that are descriptively indiscernible are morally indiscernible.<sup>1</sup>

According to Kim, neither weak nor global supervenience prove to be plausible candidates for an expression of psycho-physical dependence. The problem with global supervenience is that it is not sufficiently restrictive. Global supervenience is consistent with the idea that if two possible worlds differ with respect to some minute physical detail (for instance, one of Saturn's rings contains one more ammonia molecule than another), then they may differ radically with respect to mental properties (Kim 1993b, p. 85). Such a relation between mental and physical properties does not suggest what one should expect from psycho-physical dependence, for global supervenience does not require that there be any pattern of local dependencies between supervenient and base properties. If mental properties were to depend on physical properties, then we would expect local dependencies or covariations between mental and (perhaps) physiological properties. It would seem, at least, that physiological and not astronomical differences should entail mental differences if we are to have psycho-physical dependence.<sup>2</sup>

According to Kim, weak supervenience fares no better. The problem with weak supervenience is that it lacks the proper modal force required for genuine dependence between the related properties. In Kim's words:

Determination or dependence is naturally thought of as carrying a certain modal force: if being a good man is dependent on, or is determined by, certain traits of character, then having these traits must *insure* or *guarantee* being a good man (or lacking certain of these traits must insure that one not be a good man). The connection between these traits and being a good man must be more than a *de facto* coincidence that varies from world to world. (Kim 1993a, p. 60)

Without a necessary connection between the supervenient properties and the supervenience base, then, it seems there is little reason to think of the supervening properties as depending on the base properties. Kim claims that Davidson has said he accepts something like weak supervenience (Davidson 1985, p. 242), in which case it appears he is correct to suggest that Davidson's characterization of supervenience cannot be regarded as a kind of dependence.

Does the third alternative (strong supervenience) describe a relation of dependence? Since strong supervenience seems to ensure more than a *de facto* coincidence between the related properties (given that the relation holds across possible worlds), one might think that strong supervenience does express dependence.<sup>3</sup> Kim denies this, however. His reasoning is that dependence is clearly an *asymmetric* relation, but strong supervenience, because it involves a relation of mutual entailment between supervenient and base properties, is "neither symmetric nor asymmetric" (Kim 1993a, p. 67). Given this, strong supervenience is not the proper kind of relation to capture what we intuitively expect from psycho-physical dependence.

For when we look at the relationship specified in the definition between a strongly supervenient property and its base property, all that we have is that the base property entails the supervenient property. This alone does not warrant us to say that the supervening property is *dependent on*, or *determined by*, the base, or that an object has the supervening property *in virtue* of having the base property. These latter relations hint at an asymmetric relation. We have learned from work on causation and causal modal logic the hard lesson that the idea of causal dependence or determination is not so easily or directly obtained from straightforward modal notions alone; the same in all likelihood is true of the idea of supervenient determination and dependence. (Ibid.)

The concern is, then, that the mere fact that the mental strongly supervenes on the physical is not enough to guarantee the dependence of the mental on the physical. Therefore, such dependence does not simply follow from the definition of strong supervenience alone as one might hope.

Another way of expressing this problem is to say that strong supervenience is consistent with what William Seager calls "correlative" as opposed to "constitutive" supervenience (Seager 1991, p. 177). Correlative supervenience asserts a mere correlation between two families of properties. Thus, correlative supervenience is consistent not only with epiphenomenalism, but also with parallelism. Constitutive supervenience, on the other hand, involves the claim that the physical base properties in some sense constitute the supervenient properties. Such constitution, however it is to be understood, would serve nicely as the ground for a dependency relation and would rule out forms of ontological dualism. Since it appears that an assertion of strong supervenience alone

does not allow us to distinguish between the constitutive and correlative varieties, it cannot be regarded as an expression of dependence without further argument. This is why some authors, including Kim, have come to the conclusion that supervenience is not a solution to the mind-body problem, but instead expresses the very problem itself. Thus, I take Kim's concern that strong supervenience is non-asymmetric to express the worry that it might be a relation of correlative as opposed to constitutive supervenience. This is why, in his later paper, Kim renames his definitions of supervenience weak and strong "covariance," for since the formal definitions of supervenience are consistent with correlative supervenience they assert a mere *property covariation*.

The upshot of the discussion to this point is that Kim has levelled some very persuasive arguments against the idea that supervenience, in any of its recognized forms, captures psycho-physical dependence. Weak supervenience is lacking the appropriate modal force, global supervenience is not sufficiently restrictive, and strong supervenience lacks the necessary feature of asymmetry. In the end, then, it appears as though none of the standard formulations of supervenience capture psycho-physical dependence.

## 2.

Some authors (Grimes 1991; Horgan 1993) have proposed that we can avoid the shortcomings of the existing formulations of supervenience by modifying the scope of the necessity operators in the definition of the relation. It should be clear from the above description of the problems with Kim's original formulations of supervenience that such an approach would merely strengthen the property covariation between mental and physical properties rather than explain it. Thus, it is doubtful that even modally reinforced definitions of supervenience can capture anything more than the idea of property covariation, in which case they cannot rule out parallelism and epiphenomenalism. Therefore, in what follows I propose a different approach to this problem.

Throughout his discussions of whether or not supervenience expresses dependence, Kim has characterized the relation as one that holds between families of properties.<sup>4</sup> This was the case even when he discussed weak supervenience, which he took to be equivalent to Davidson's formulation of the relation. I have suggested elsewhere (Campbell 1997, 1998) that criticisms of Davidson's account of mental causation misfire because they fail to take seriously his reluctance to endorse properties. I suspect that the same difficulty arises for Kim's criticism of Davidson's account of supervenience. Perhaps if we conceive of supervenience as a relation between predicates rather than between properties, as Davidson would demand, the difficulties Kim has identified will not arise.

To appreciate this idea we need to be clear on the differences in the way Davidson and Kim understand supervenience and the items it relates. Kim's treatment of supervenience is thoroughly *metaphysical*. In his view, supervenience is a thesis about the underlying ontological structure of the world, for it picks out relations between the properties that are, along with a time and an object (or objects), constitutive of events. Davidson, on the other hand, has little tolerance for the idea that events should be analyzed in terms of property exemplifications. In his view, when philosophers talk about properties they should really be understood as talking about predicates, about items of language rather than items of ontology. If we construe Davidson's talk about properties ("characteristics," "respects," and the like) as talk about predicates, it appears that Davidson's version of supervenience is quite different from Kim's. Far from a metaphysical thesis, Davidson's is a thesis about our use of language, a thesis about the relations between the use or application of certain words. This is corroborated by the following passage where Davidson tries to clarify what we should take supervenience to express:

The notion of supervenience, as I have used it, is best thought of as a relation between a predicate and a set of predicates in a language: a predicate *p* is supervenient on a set of predicates *S* if for every pair of objects such that *p* is true of one and not of the other there is a predicate of *S* that is true of one and not of the other. (Davidson 1985, p. 242)

Since we are interested here in psycho-physical supervenience, the mentioned relation holds between mental predicates and sets of physical predicates. Treating the relation as one between predicates in this way means that if, on any particular occasion, the same physical predicates can be ascribed to two agents, then we are justified in ascribing the same mental predicates to both and, alternatively, if we are to ascribe different mental predicates to two agents, then we must ascribe different physical predicates to both. If we take Davidson seriously here and resist the usual temptation to ignore the difference between properties and predicates, this opens a way of regarding supervenience as a relation of dependence. However, the kind of dependence expressed is not *metaphysical* dependence; as we shall see, it is instead a kind of *pragmatic* or *inferential* dependence.<sup>5</sup>

Before I elaborate on this alternative treatment of Davidson's thesis, it would be useful to clarify the identified distinction between properties and predicates. One might think that Davidson does not take this distinction seriously, in which case my suggestions would be an unfair distortion of his views. In "Thinking Causes," for example, Davidson at times seems oblivious to any meaningful distinction between properties and predicates since he slides quite freely throughout the article between talk of

each of these in connection with his thesis of supervenience. While this is unfortunate, I believe this is merely the result of his speaking loosely. At times, Davidson is unambiguous about his attitude toward properties. This is particularly evident in his discussions about causation and his response to the charge that his anomalous monism entails epiphenomenalism. The main thrust of his reply is that there are no properties in virtue of which events cause. This is not *simply* due to a peculiarity in Davidson's understanding of causation, but instead stems from Davidson's general refusal to reify properties, which is in turn motivated by his adoption of a Tarski-style semantics of truth. In his view there is nothing "in" events that makes it true that they can be described using certain predicates (or bring about certain effects). The application of predicates is therefore a matter of ascription and thus depends on general principles of interpretation rather than recognition-transcendent facts.<sup>6</sup> Therefore, even though Davidson at times speaks as though he endorses property-talk, it is clear that he does not take such talk as seriously as someone like Kim does. For Davidson there are no properties in the sense implied by that locution (i.e., ontological components of events). When he speaks of properties, then, Davidson is best understood as referring to predicates. Thus, when Davidson explicitly defines supervenience as a relation between predicates rather than properties we ought not to conflate the two in the way that Kim does.<sup>7</sup>

I described Davidson's definition of supervenience as one expressing a form of inferential or pragmatic rather than metaphysical dependence. The sort of dependence at issue is not the familiar variety of showing that certain predicates from different areas of discourse are definitionally equivalent, and hence can be reduced one to the other in the way some have thought that moral predicates are analytically definable in terms of naturalistic ones. Davidson explicitly rules out this possibility when he says in his description of supervenience that it "does not entail reducibility through law or definition . . ." (Davidson 1980, p. 214, emphasis added). What other form of dependence might there be?

The answer to this question lies in Davidson's interpretationalism. According to Davidson, to have beliefs and desires is to have them ascribed by an interpreter.<sup>8</sup> What mental predicates are ascribed to an agent depend logically on the procedures we follow in the task of interpretation. There are, of course, three central things we need to consider: (1) the behaviour of the agent; (2) the agent's relation to his or her environment; and (3) in accordance with the principle of charity, the assumption that if the agent has any beliefs at all, then they will conform largely to our own.

Conditions (1) and (2) can be expressed in terms of a set of physical predicates and I want to suggest that these are the ones on which the mental predicates supervene and depend. Condition (3), however, introduces



a complication. (3) includes other mental predicates, in which case it seems that the mental predicates ascribed by an interpreter do not depend logically on physical predicates alone. This is true in a sense, and is a well-known feature of Davidson's holism regarding the mental, but we need to clarify the status of (3). The principle of charity is a general guiding principle and not an empirical resource in the way that (1) and (2) are. That is, we do not use the principle of charity as the *evidential ground* that tells us whether or not an agent has any beliefs, or what those beliefs might be. This is why I put it in the form of the conditional: *If* an agent has any beliefs at all, *then* they will conform largely to our own. Consequently, the starting point of interpretation deals in physical predicates, for what we can say about the physical state of an agent and the physical conditions of the environment when an utterance is made (for instance, the nearby rabbit when an agent utters "gavagai") are primary in the enterprise of interpretation; it is on the basis of such evidence that we ascribe mental content. It therefore seems clear that there is a significant sense in which mental predicates depend on physical ones, for without the physical evidence there is no reason to ascribe mental states to an agent. As I said earlier, this is not the kind of metaphysical dependence Kim tried to capture. Instead, Davidson's describes a dependence that exists in our linguistic practices, a relation between our physical descriptions and mental descriptions. Hence, when we think of supervenience as relating predicates, and when we consider the relation that holds between mental and physical predicates in radical interpretation, it is clear that mental predicates, when assigned to agents, depend on physical predicates. Thus, despite Kim's claims to the contrary, it would appear that Davidson's version of supervenience does express a form of dependence.<sup>9</sup>

Although one might be convinced that Davidson's views on interpretation and mental ascription describe a relation of logical or inferential dependence between predicates, one might worry that this relation is distinct from that of supervenience, in which case supervenience might not express dependence after all. One could argue that the relations just described concern the development of an overall theory of interpretation rather than the more specific relation between the mental and the physical supervenience is supposed to describe. I think such a concern is misguided because, within Davidson's philosophy, these are not separate ideas. Consider Davidson's definition of supervenience in "Mental Events": "that there cannot be two events alike in all physical respects but differing in some mental respect, or that an object cannot alter in some mental respect without altering in some physical respect . . ." (Davidson 1980, p. 214). These describe exactly the relations we expect to find in radical interpretation. If two individuals are in similar environments and behave in the same ways (for instance, they both point at a rabbit and utter "gavagai"), then since we have the same physical evidence as the ground for our inter-

pretation of the utterance it seems, on pain of arbitrariness or irrationality, as though we must ascribe the belief "That's a rabbit" to both speakers. Similarly, we require behavioural (hence physical) evidence to ascribe a *change* in belief state to a speaker. If we are to say that the speaker now thinks "That's an aardvark" and not "That's a rabbit," the speaker must alter his or her behaviour in appropriate ways or the physical conditions that bear on the utterance must have changed to warrant a difference in our mental ascriptions, otherwise we have no rationale for ascribing a mental difference.<sup>10</sup> Thus, the relations of dependence generated by principles of interpretation between mental and physical predicates are precisely those described in the above definition of supervenience. Given that Davidson later on formulated supervenience in terms of a relation between predicates, and given that this is consistent with his earlier definition in "Mental Events," I see no reason to think that the form of psycho-physical dependence I have described is different from the one Davidson's supervenience is supposed to capture.

Construing supervenience as a relation of pragmatic dependence between predicates, along the lines suggested above, looks like a promising approach to use in other areas. For instance, one might similarly speak of moral or aesthetic predicates being dependent on certain classes of descriptive predicates. As with Davidson's brand of supervenience, such relations would describe practical connections between different types of discourse rather than qualities inherent in actions or in works of art. While I do not care here to conjecture about the more specific form these might take, it certainly looks worthwhile examining how the understanding of supervenience outlined here might generalize to these other kinds of predicates.

Aside from showing how supervenience can be construed as a relation of psycho-physical dependence, the connection I have suggested between supervenience and Davidson's interpretationalism has the further virtue of removing a difficulty his critics have with this relation. A number of philosophers have argued that Davidson's version of supervenience entails that two people who are identical in every physical respect except for one seemingly irrelevant physical detail (e.g., one person has one eyelash that is longer than his or her counterpart's) must have different beliefs (Evnine 1991, pp. 69-70). This, of course, is intended as a *reductio ad absurdum* of Davidson's theory. This objection is unfair to Davidson if we read him in the way I have suggested. First, the criticism assumes that the relation holds between properties, which is not the case. Second, even if it did not make this mistake, it proceeds from the false assumption that there is a particular set of predicates describing certain physical features of an individual (for instance, ones describing the brain rather than eyelashes) on which mental predicates depend. If we take Davidson's interpretationalism seriously, this is not the case. The relevant physical

predicates are not those describing the neural networks of speakers (though they are not irrelevant); they are instead the broader ones that figure in the process of interpretation: the physical environment of the speaker and his or her behaviour. Thus, the objection goes wrong by assuming some form of local supervenience. Since we have seen that the mental supervenes non-locally on the physical (by virtue of the role of the environment and behaviour, broadly construed) the objection misses the mark completely.

It is worth considering one final objection. One might wonder if the same difficulties that plagued Kim's formulations of supervenience might resurface for Davidson's. Since Davidson's formulation is modally weak, it is fair to ask whether the fact that mental and physical predicates vary in their covariation across possible worlds entails that their covariation in this world is, as Kim puts it, a mere "*de facto* coincidence." If so, then Davidson's version of the thesis is no better off than Kim's weak supervenience. To address this worry we need to be clear about the differences between Kim's formulation of supervenience and Davidson's. Although they share certain formal similarities, I think we have seen that Davidson's understanding of supervenience is very different from Kim's. First, Davidson's thesis connects predicates rather than properties; second, it is a pragmatic rather than metaphysical thesis; third, it clearly describes a relation of dependence rather than simple covariation. In light of these differences, it is clear that Davidson's version of supervenience is not equivalent to Kim's weak supervenience as most have assumed. Thus, given the way that Davidsonian supervenience has been conceptualized, it should be evident that the fact that Davidson's version of supervenience is modally weak does not create an obstacle to regarding it as a relation of dependence in this world.

### Conclusions

The interpretation of Davidson's account of supervenience I have proposed certainly gives us a sense of psycho-physical dependence, but many will find it dissatisfying. I suspect the reason for this is that most would prefer the kind of metaphysical dependence between mental and physical properties Kim tries to develop. Kim's thesis is more exotic than Davidson's and does not require us to accept what to many might seem an unpalatable nominalism. While I suppose Davidson's brand of physicalism is, as he himself describes it, a "bland monism" (Davidson 1980, p. 214), his general approach, including his view of mental properties, has its merits. Kim's alternative metaphysical treatment of the thesis proceeds from the premise that there are such things as mental properties, which, despite being reducible to physical properties (under strong supervenience), nevertheless have an unspecified ontological status of their own. This strikes me as a rather mysterious position. On the other hand, if we proceed from

Davidson's assumption that events are mental only when described using mental predicates, and that predicates are simply components of a language which obey the rules of language use and interpretation, then much (though not all) of the mystery of the mental is removed. Thus, rather than try to squeeze metaphysical dependence out of psycho-physical supervenience by formulating ever-stronger modal variants of the relation, it seems more promising to follow Davidson's lead and to think of the relation as holding between predicates and as expressing inferential or pragmatic dependence. Of course, such an approach requires that we accept Davidson's nominalism and interpretationalism, and it is another matter whether these are acceptable. In order to determine whether or not Davidson's brand of supervenience and the kind of physicalism it supports is worthwhile adopting, one would have to look more deeply into the question of nominalism about mental properties and assess the plausibility of Davidson's views on mental ascription. Unfortunately, exploring these issues goes well beyond the scope of this paper. My aim here was simply to clarify what I take to be a serious misunderstanding about Davidson's account of supervenience and to show that his is a promising approach if we want supervenience to express a form of dependence. To this end, I hope this discussion has been helpful.<sup>11</sup>

## Notes

- 1 It bears observing here that Kim chooses a poor example to express the supervenience of moral on descriptive properties since properties such as courage, benevolence, and honesty are arguably evaluative rather than descriptive.
- 2 The obvious manoeuvre of specifying which physical properties in a world are relevant to the distribution of mental properties is blocked by the very fact that the relation is globally defined. Such a move would require an alternative formulation of supervenience such as local supervenience or something intermediate between local and global supervenience.
- 3 Of course, if it turns out that strong supervenience is equivalent to global supervenience, as some claim, then it is not a good candidate for an expression of dependence either. This issue, however, appears to remain undecided.
- 4 In fact, Kim states a number of times that it does not matter for the purpose of his discussions whether one conceives of the relation as one between properties or predicates, but as we shall see, there is reason to think otherwise.
- 5 In an earlier paper (Campbell 1998), I gestured at this way of understanding Davidsonian supervenience and described it as a form of "semantic" dependence. It seems to me now that this was a mistake. The dependence at issue is not one in which the meanings of certain words are determined by others, but, as we shall see, where certain kinds of descriptions or predicates (i.e., physical) entail pragmatic constraints on the application of other (i.e., mental) types of descriptive terms.

- 6 One might wonder if Davidson's reluctance to admit properties into his ontology is true for both mental and physical properties or for mental properties alone. While Davidson is not very clear on this point, it would seem that his insistence that all causal relations have descriptions that instantiate strict causal laws, whether those laws are known or not, suggests a realist commitment to physical properties. I therefore suggest that his irrealism about properties plausibly extends only to mental properties, though it sometimes seems as though he thinks it extends to all properties. For a more detailed defense of this interpretation, see Campbell 1997.
- 7 It is not my aim here to offer any support in favour of Davidson's nominalism. My intention is merely to clarify Davidson's brand of supervenience and to show that, when properly understood, it expresses a form of psycho-physical dependence that might be useful to those who wish to argue for a supervenience-based physicalism. There is certainly much room for argument about the relative merits of nominalism, on which Davidson's thesis depends. It could be that Davidson's reasons for adopting nominalism are no longer convincing and that nominalism is something we should do away with, in which case the understanding of supervenience I am attributing to Davidson is also, in its present form, insufficiently motivated. Certainly, we cannot argue that Davidson's nominalism is well motivated because it will give us a form of supervenience that captures dependence. That gets things the wrong way around. Nominalism must be evaluated on the basis of its own merits and problems.
- 8 Once again, as with his nominalism, I am not interested defending Davidson's views on mental ascription, but merely with clarifying the role these ideas play in supervenience.
- 9 To avoid misunderstanding I should emphasize that the dependence described here is not a relation between predicates *simpliciter*, but between the *ascription of predicates*. This is why I describe it as "inferential" or "pragmatic" dependence. Thus, when I speak of dependence between predicates this should really be understood as shorthand for dependence between the ascription of predicates.
- 10 One might wonder whether it is necessarily the case that a difference in the ascription of mental predicates must always be grounded in differences in the ascription of physical predicates. If there are other principles governing the ascription of mental states, then this will undermine the dependence of mental on physical predicates. This seems to me to be a legitimate concern, though I cannot at present think of what other sorts of principles might take over. Certainly, Davidson's holism dictates that the mental predicates ascribed to an individual may be re-evaluated at any time in order to satisfy conditions of consistency and rationality, which is why the mental does not constitute a closed system. Principles of consistency and rationality, however, do not appear to threaten the dependence of the mental on the physical because these guiding principles must be responsible to the physical evidence that starts and

guides mental ascription. Thus, although I have no definitive argument for this claim, it seems reasonable enough to suppose that the other principles that guide mental ascription and might, at times, call for a revision of the mental states ascribed to an individual, must rely on physical evidence, either initially (as when an agent suddenly does something that does not fit with the rational pattern of belief ascribed thus far) or subsequently (as when the body of physical evidence is re-examined) in which case the dependence of mental on physical predicates is not threatened.

- 11 My thanks to Evan Simpson, Ausonio Marras, William Seager, and the referees for this journal for their comments on earlier drafts of this paper.

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