

The Timing Problem for Dualist Accounts of Mental Causation

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Abstract: Setting aside all exclusion-style worries about the redundancy of postulating additional, non-physical mental causes for effects that can already be explained in purely physical terms, dualists who treat mental properties as supervening on physical properties still face a further problem: in cases of mental-to-mental causation, they cannot avoid positing an implausibly coincidental coordination in the timing of the distinct causal processes terminating, respectively, in the mental effect and its physical base. I argue that this problem arises regardless of whether one treats the mental cause as causing both the mental effect and its physical base, or whether one treats the latter as having instead been caused by some physical state, and that the problem also does not depend on which theory of causation one adopts. A third option of treating the mental cause and its physical base as producing the mental effect and its physical base by a single causal process that they both contribute to is found to come up short as well.

Keywords: mental causation; exclusion problem; dualism; emergentism; supervenience.

1. Introduction

Questions about dualists' ability to account for the mind's causal efficacy have tended to focus on (a) the apparent redundancy of non-physical mental causes in a world where every physical effect already has a sufficient physical cause, (b) the alleged incompatibility of non-physical causation of physical effects with conservation laws in physics, or (c) the difficulty of conceiving how a non-physical entity could affect or be affected by the motion of any physical thing. The first type of criticism has been expressed most forcefully in recent times by Kim's (1989a; 1989b; 1993; 1998) Exclusion Argument for reductive physicalism¹, the second has been raised by numerous authors, including Leibniz (1714/1898, §80), Fodor (1981, p.114), Dennett

¹ See also Malcolm (1968), Campbell (1970, pp.39-40, 51-5), Peacocke (1979, pp.134-9), and Schiffer (1987, pp.146-54).

(1991, p.35), and Papineau (2001), and the *locus classicus* for the third is Princess Elisabeth's remark in a letter to Descartes (dated June 10, 1643) that it would, in her view, be "easier to concede matter and extension to the soul than to concede that an immaterial thing could move and be moved by a body." This paper raises another potential problem for dualist accounts of mental causation that has I think been largely overlooked.² While I believe that the three criticisms mentioned above can be met by dualists, I don't yet see any clear solution to this additional problem. The purpose of this paper is therefore simply to present the problem and clarify how it differs from the other objections just mentioned.

Three quick preliminaries: First, by "dualism" I mean the view that mental properties and their instances are distinct from, irreducible to, and genuinely something "over and above" (henceforth, simply "irreducible to") physical properties and their instances (and *vice versa*). While this definition encompasses both traditional substance dualism and some forms of property dualism, varieties of "token" or "non-reductive" physicalism (e.g. Davidson's (1970) Anomalous Monism) that treat each instance of any mental property as identical to an instance of some physical property do not qualify as forms of dualism in the sense at issue. For the purposes of this paper, I will also take dualism to be incompatible with powers-based subset views, which treat the causal powers of any mental state³ as a subset of the causal powers of its physical base (Wilson 1999, 2011; Shoemaker 2001; Clapp 2001; Kallestrup 2006, p.470). Those who agree with Wilson (2011) that such views imply that mental states are nothing over and above their physical bases will see this as following from the above definition of dualism. I myself am somewhat doubtful of this claim, as it seems to me that one might identify each mental state's causal powers with certain

² Although, as discussed in Section 6, there is a way of viewing the Exclusion Argument in which it turns out to rest on the problem I'm concerned with.

³ I'll use this expression throughout as a blanket term to refer to both mental properties and their instances.

powers of its physical base while also holding that the phenomenal character of any phenomenally conscious mental state is irreducible to its physical base.⁴ At any rate, since the problem I'll be discussing does not apply to this view, to simplify the exposition, I'll proceed under the assumption that dualists who aren't epiphenomenalists must treat mental states as having causal powers that aren't identical to any of the causal powers of their physical bases.⁵ Those who reject this assumption can take the problem I'll be raising as showing that dualists must either embrace epiphenomenalism, adopt a powers-based subset view of the relation between mental states and their physical bases (and show that such views are indeed compatible with dualism), or abandon dualism altogether.

Second, the problem also arises only for forms of dualism that hold that mental properties at least weakly supervene on physical properties, meaning that “[n]ecessarily, for any object x and any [mental] property F..., if x has F, then there exists a [physical] property G... such that x has G, and if any y has G, it has F” (Kim 1987, p.316).⁶ While there are dualists who deny all such supervenience claims, forms of dualism that accept this weak supervenience thesis (e.g. certain emergentist forms of property dualism) are I think sufficiently plausible and influential to make this a problem worth noting. The thesis is also credible enough that if dualists should be compelled to reject it because of the problem described below, this might reasonably be viewed as a setback

⁴ Melnyk (2006, pp.138-43) argues on these grounds (*contra* Wilson 2011, pp.128-9) that powers-based subset views are insufficient for physicalism unless combined with a causal theory of properties of the sort endorsed by Shoemaker (1980) and Clapp (2001).

⁵ In other words, I'll be assuming that non-epiphenomenalist dualists must treat mental states as satisfying the “New Power Condition” that Wilson (2021, p.51) associates with strong emergentism.

⁶ The problem applies equally to versions of dualism that treat mental properties as strongly supervening with either nomic or metaphysical necessity on physical properties, and to most versions of dualism that treat mental properties as globally supervening on physical properties as well (Kim 1987). The problem doesn't apply to forms of dualism that only accept a global supervenience thesis that is so weak as to allow that token mental states could occur in the actual world without any accompanying physical base, but such views strike me as much less plausible than forms of dualism that accept the supervenience claim above.

for dualism. For sake of simplicity, I'll also assume throughout that supervenience is a synchronic relation, but this is inessential, for reasons I'll explain in Section 3.

Third, I take it that any satisfactory account of mental causation must be able to distinguish genuine instances of mental causation from the kinds of situations that would obtain in an epiphenomenalist world wherein mental states are nomically, counterfactually, and/or probabilistically correlated with other states in such a way that they *seem* to cause them, despite being causally inert. If one identifies a certain relation between a mental state and some other state as that by virtue of which the former qualifies as causing the latter, that relation consequently cannot be one that an epiphenomenalist might grant that mental states bear to other states that (according to the epiphenomenalist) the former merely *seem* to cause. I'll call this the *epiphenomenalist constraint*.⁷ I take it to imply that dualists cannot treat the causal relation that they postulate between a presumptive mental cause and its effect as holding *solely* in virtue of some *other* causal relation between the mental cause's physical base and the relevant effect (or the effect's physical base). For in that case epiphenomenalists might reasonably ask what reason we have to ascribe any causal efficacy to the alleged mental cause, or postulate any additional causal relation besides that whereby the alleged mental cause's physical base causes the relevant effect (or the effect's physical base). (More on this in Section 5.)

The remainder of the paper is structured as follows: Sections 2 and 3 describe the problem. Section 4 considers some ways in which strong emergentist varieties of dualism might be thought to resolve it. Section 5 addresses the worry that the problem presupposes an overly simplistic view

⁷ This constraint can be seen as a generalized version of objections that Kim (1998, p.69-72) and Kallestrup (2006, pp.475-9) raise against non-reductivist attempts to account for mental causation in terms of counterfactuals.

of causation. Section 6 then compares the problem to the Exclusion Argument and a related problem raised by Melnyk (2003) and Sharpe (2015).

2. The Timing Problem: Part 1

On, now, to the problem itself. I call it the Timing Problem, for reasons that will become clear shortly. The problem is most discernible in instances of mental-to-mental causation, e.g. inference, so I'll focus on these. Consider a thinker S who forms a new belief that q by reasoning from their beliefs that p and that if p , then q . It seems natural, in such cases, to describe S's newly acquired belief as having been caused by their beliefs that p and that if p , then q (perhaps together with the belief that *modus ponens* is a valid form of inference).⁸ Assuming mind-body supervenience, the onset of S's belief that q (henceforth M2) must coincide with some physical state P2 that is sufficient for it. What then is the cause of P2? Two possibilities present themselves: Either P2 is caused by M2's mental causes (call these M1), or P2 is caused by some physical state

⁸ An anonymous reviewer suggests that this example is flawed because inference is non-causal. Those who share this view can replace this example with some other, non-inferential case of mental-to-mental causation (although for reasons discussed in Section 3, it is important that the example be such that the mental cause produces the mental effect because it is taken as a *reason* for the latter). That said, I'm unsure how to understand inference except as involving a causal relation between beliefs. Granted, there are cases of hypothetical reasoning where, in contrast to the example described above, one infers a proposition p from certain other propositions *without* believing either the conclusion p or the premises from which it's inferred. Even in such cases, though, one must at the very least acquire a *new* belief to the effect that p follows from the premises in question; otherwise, one wouldn't be *inferring* p from those premises, but instead simply accessing a belief that one already had (in this case, the belief that p follows from those premises), which is recollection, not inference. All inference thus seems to involve the acquisition of some new belief, whether this is a belief in the conclusion of the inference itself, or merely that the conclusion follows from certain premises. Now the acquisition of this belief is no accident; it must have *some* cause. And it seems to me that this cause surely includes the individual's beliefs in the premises of the inference, or at the very least their belief in the validity of certain rules of inference that they take themselves to be applying in drawing the conclusion that they do. These beliefs are after all the reason *why* the individual acquires the new belief in question. The reviewer rightly notes that causation isn't normative. But it doesn't *exclude* normative connections either; two states that are causally related can be normatively related as well. This, I take it, is the key upshot of Davidson's (1963) argument that reasons can be causes. Indeed, as I'll argue in Section 3, there seem to be some cases wherein certain mental states M1 and M2 that an individual is in *must* be causally related in a certain way in order for us to properly designate M1 as that individual's *reason* (in the normative sense) for being in M2.

P1 (which may or may not be the state on which M1 supervenes). Call the latter possibility Option 1 and the former Option 2.⁹ We can represent these two options as follows:



Proponents of the Exclusion Argument may reject both options on the grounds that since P2 is sufficient for M2, once a cause has been supplied for P2, any further causation of M2 becomes superfluous. On either option, the need for any direct causal link between M1 and M2 (i.e. a causal relation between M1 and M2 that doesn't consist solely in M1's causing some other state, e.g. P2, that M2 supervenes on) may thus seem to be excluded by the fact that M2 supervenes on a state that itself has a sufficient cause, whether that cause be M1 or something else.

Focusing first on Option 1, the point I wish to make is that *even setting aside all such exclusion-style worries about the potential redundancy of any direct causation of M2 by M1*, Option 1 *still* leaves us with an implausibly coincidental coordination between the distinct causal processes whereby M1 and P1 produce their respective effects, such that they manage to produce them at *the exact same time*. To be clear, the question is *not* why M2 and P2 occur at the same time; this is explained by the fact that M2 supervenes on P2. The question, rather, is that *given* that

⁹ Not all dualists will see both of these as live options. Dualists of the strong emergentist variety, who deny that every physical effect has a sufficient physical cause in the belief that doing so is the only way to avoid exclusion-style worries about overdetermination, may thus see Option 1 as a non-starter (Wilson 2021, pp.51-3). Granting this, I think it can still be instructive to see how the Timing Problem arises regardless of which of these options dualists choose, and, more generally, whether they accept or reject the causal closure of the physical.

M2 and P2 *must* occur at the same time, how do their respective causes coordinate so as to produce them in a way that respects this fact? If mental and physical states are irreducible to one another as dualists maintain, then there is no reason to expect my beliefs that p and that if p , then q to cause me to believe that q at the very moment that some distinct causal process issuing from a separate physical cause produces the physical state on which my belief that q supervenes. Dualists might explain the coordination between these distinct causal processes by holding that the causal laws governing M1 and P1, respectively, are such as to ensure that their effects coincide in this way, but this just moves the bump in the rug. For the coordination among these causal laws seems no less implausibly coincidental than the coordination in the timing of the causal processes that it's supposed to explain.¹⁰ Whether we accept the coordination in the timing of the causal processes linking M1 to M2 and P1 to P2 as brute, or instead treat it as backed by a coordination among the laws that govern them, the implausibly fortuitous nature of this coordination thus can't be avoided. This, in a nutshell, is the Timing Problem: *in cases of mental-to-mental causation, dualists cannot avoid positing an implausibly coincidental coordination in the timing of the causation of the mental effect and the causation of its physical base.* Such coordination between mental and physical causes may seem unobjectionable to followers of Leibniz or Spinoza, but the parallelism or pre-established harmony that such theorists postulate to account for it is one of the main reasons why their views are now typically viewed with skepticism.

As stressed above, the question I'm raising is not why M2 and P2 coincide (which is explained by M2's supervenience on P2), but rather how their respective causes are able to produce them in a way that conforms to this fact. One might wonder, though, whether there is indeed

¹⁰ Dualist advocates of strong emergentism might respond that there is no need to explain how the laws connecting M1 and P1 to M2 and P2 are synched up in the requisite way, because the laws in question (and the causal processes they govern) are not entirely distinct. I consider the strong emergentist position in Section 4.

anything left to be explained once we've granted that M1 causes M2, P1 causes P2, and M2 supervenes on P2. Given that M2 and P2 are guaranteed to coincide (since the former supervenes on the latter), why isn't that enough to explain how M1 manages to cause M2 to occur at the same time that P1 causes P2 to occur? I think that M2's supervenience on P2 *isn't* enough to explain this, and that some further explanation *is* needed here if the situation isn't to be left seeming implausibly coincidental. More generally, the fact that M2 and P2 necessarily coincide is, I suggest, distinct from and inadequate to explain the fact that the cause of M2 causes it to occur at the same time that the cause of P2 causes it to occur. Granted that M2 and P2 can't but occur at the same time, there is still a further question to be asked as to how their respective causes manage to produce them in this way. The best way I can think of to show this is to note how physicalists *can* explain what I worry dualists *cannot*.

The worry I'm raising doesn't arise for physicalists who hold that while token mental states are numerically distinct from their physical bases (e.g. because the "causal profiles" of the two states differ), the causal powers of any mental state nevertheless constitute a subset of the causal powers of its physical base (Wilson 2011; Shoemaker 2001). On such views, it's no mystery how M1 manages to cause M2 to occur at the exact moment that some physical state causes M2's physical base, for the process whereby M1 causes M2 is part of the process whereby M1's physical base (here identified as P1) causes M2's physical base (i.e. P2). (Brief terminological aside: To simplify matters, I'll henceforth speak as though the process whereby M1 causes M2 and the process whereby P1 causes P2 are on such views one and the same. Advocates of powers-based subset forms of physicalism might object that the latter process is instead related to the former as whole to proper part, since P1's causation of P2 may involve the manifestation of additional powers beyond those that are involved in M1's causation of M2. This doesn't affect the main point

at issue here, which depends merely on the fact that, on such views, the powers that M1 manifests in causing M2 are token-identical to certain of the powers that P1 manifests in causing P2.) This identification of the causal processes issuing from M1 and P1 provides an answer to the additional question raised above, which *isn't* answered merely by the observation that M2 and P2 must coincide. For granted that M2 can't but coincide with P2, we can again still ask how M1 and P1 manage to cause them in a way that conforms to this fact. In contrast to dualists, physicalists have a ready answer to this question, viz. that the process whereby M1 causes M2 is identical to that whereby P1 causes P2. There is thus no possibility that one of these causal processes might terminate prior to or preempt the other, for as Wilson (2011, p.128) puts it, “[t]here is only one causing, not two.”

Physicalists (e.g. Davidson 1970) who treat mental states as token-identical to their physical bases can of course avail of this answer to the question as well, but note that what's doing the work is *not* the assumption that $M1=P1$ and $M2=P2$ *per se*, but rather that M1's causation of M2 is identical to P1's causation of P2. By contrast, if one were to hold that while $M1=P1$ and $M2=P2$, the process whereby M1/P1 causes M2/P2 *qua* mental effect is *distinct* from the process whereby M1/P1 causes M2/P2 *qua* physical effect in that the former causal process involves the manifestation of certain causal powers that are not included among those manifested in the latter, then the question of how these two distinct causal processes issuing from M1/P1 are able to coordinate so as to terminate in M2/P2 at the exact same time would remain to be answered.¹¹ This brings home the point that the necessary coincidence of M2 and P2 is insufficient to answer the question I'm raising as to how M1 and P1 manage to produce them at the same time. For here the coincidence of M2 and P2 is guaranteed by the presumed fact that $M2=P2$. Even granting this,

¹¹ I don't know of anyone who holds this sort of view. I introduce it merely for purposes of illustration.

however, one can again *still* ask how the distinct causal processes issuing from M1 and P1 (or M1/P1) manage to terminate in this same effect at the same time, without either preempting the other.

The physicalist's identification of these causal processes provides an answer to this question, but this response is unavailable to dualists who adopt Option 1. For on this option, any instance of mental-to-mental causation involves *two* causings: one wherein a mental state causes a mental effect, and another wherein some physical state causes the mental effect's physical base. The question then arises how these distinct causal processes manage to produce their effects at the exact same moment, which (as I've been belaboring *ad nauseam*) is not answered merely by the observation that since one of these effects supervenes on the other, they can't but coincide.

3. The Timing Problem: Part 2

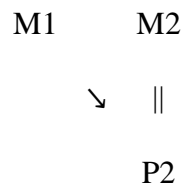
We can now see how the Timing Problem applies to Option 2 as well. Assume, *à la* Option 2, that M1 causes both M2 and P2 via distinct causal processes. The question then arises: how is M1 able to coordinate its causation of M2 with its *own* causation of P2 so as to ensure that these distinct processes produce their respective effects at the exact same time? As with Option 1, the fact that M2 and P2 must occur at the same time, since M2 supervenes on P2, is insufficient to answer this question. For here too, the observation that M2 and P2 must coincide still leaves us with the further question of how the distinct causal processes issuing from M1 are able to coordinate so as to produce M2 and P2 in a way that conforms to this fact. In contrast to Option 1, we're now assuming that the distinct causal processes terminating in M2 and P2 originate from the same source, viz. M1. But this doesn't answer the further question either, for the same thing

can cause different effects to occur at different times. The bare assumption that the causal processes that produce M2 and P2 both originate from M1 consequently gives us no reason to expect these distinct processes to terminate at the same moment.

This was indeed already illustrated by the view discussed above according to which M1=P1 and M2=P2, but M1/P1's causation of M2/P2 *qua* mental effect is distinct from its causation of M2/P2 *qua* physical effect. There too, the assumption that these distinct causal processes issue from the same cause is insufficient to explain how they manage to terminate at the same moment, even with the added assumption that the two processes produce the same effect. In dropping this latter assumption to hold (*à la* Option 2) that while M2 and P2 are produced by distinct causal processes issuing from the same cause (*viz.* M1), M2 supervenes on, but is *distinct* from, P2, we are thus left with the same question.

Fans of Option 2 might respond by holding that mental states only cause other mental states *indirectly*, by causing their physical bases.¹² This would avoid the worry as to how M1 manages to coordinate its direct causation of M2 with its causation of P2 so as to ensure that these distinct processes terminate at the same time by eliminating the horizontal arrow in the diagram above and giving us the following model instead:

Option 2*



¹² One might object that this relies on an overly simplistic view of causation, as there are theories of causation available according to which, if M2 supervenes on P2 and M1 causes P2, M1 thereby qualifies as directly causing M2 as well. I address this issue in Section 5.

M1's causation of M2 would thereby be treated as analogous to cases of physical-to-mental causation, e.g. when a pin prick indirectly causes a sensation of pain by causing the physical state that the sensation supervenes on.

I don't think Option 2* will work, as it seems to me to stand in tension with the normative or rational character of inference. In making an inference, one must take one's premises to provide some logical support or reason for adopting the belief that one arrives at as the conclusion of one's inference, and this logical or normative connection that one discerns between one's premises and one's conclusion must be responsible for one's adopting the latter. Yet if the beliefs that serve as one's premises can only cause one's conclusion *indirectly*, by causing the physical state on which it supervenes, then the route from one's premises to one's conclusion must pass through a physical state that, from the dualist's perspective, is completely non-intentional and devoid of content, and thus bears no logical or normative connection whatsoever to one's premises or the conclusion they support. In addition to being rather counterintuitive (at least by my lights), this seems to undermine the rationality of the entire process.¹³ Just as one wouldn't qualify as making an inference if one were to form a belief in some deductive consequence of one's prior beliefs by pressing a button that activates certain electrodes implanted in one's brain, thereby causing a physical state that gave rise to the belief in question (*even if* the prior beliefs from which the new belief follows were what caused one to press the button), so too one would not, I think, qualify as making a genuine inference if one's premises give rise to one's belief in the putative conclusion only by causing some non-intentional physical state that it supervenes on.

¹³ It seems to me that this holds even if mental states strongly supervene on their physical bases with nomic or even metaphysical necessity. I also take this point to hold in cases wherein the inferences we make are faulty. What's important is that the thinker *takes* their conclusion to be logically supported by their premises, and thus as something that they *ought* to accept given their commitment to those premises, even if their inference is fallacious.

While this problem is most pronounced in cases of inference, the same issue arises in any case of mental-to-mental causation wherein the mental cause serves as the individual's reason for being in the mental state that it causes, and the mental effect is hence justified and made rational (at least by that individual's lights) by the mental state that produced it. In all such "normatively loaded" instances of mental-to-mental causation, the rationality of the process connecting the mental cause to the mental effect seems to require that the former cause the latter directly, i.e. in a way that doesn't consist merely in its causing some other state that the mental effect supervenes on. If this is correct, then (to expand on a point of Davidson's (1963, p.691)) not only must we treat an individual's reasons for being in a certain mental state M2 as *causing* M2 to determine which of the various potential reasons they had for being in M2 is the actual reason why they're in it, the mental state that serves as their reason for being in M2 must also have caused M2 *directly* to account for the rational connection between M2 and its mental cause.¹⁴

Barring Option 1 (and epiphenomenalism), the dualist's only options thus seem to be to hold either (*à la* Option 2*) that M1 only causes M2 indirectly, by causing P2, which in turn gives rise to M2, or (*à la* our original, unmodified Option 2) that in addition to causing P2, M1 also directly causes M2.¹⁵ The former option seems unable to account for the rationality of normatively loaded instances of mental-to-mental causation, since it violates the requirement that in such cases, the mental causes must cause their mental effects *directly*. We are therefore left with Option 2, which brings us face-to-face once again with the Timing Problem.

¹⁴ See note 8.

¹⁵ Kim (1993, p.205) claims that "the only coherent story we can tell" in such cases "is to suppose that [M1] caused [M2] *by causing* [P2]," before excluding this possibility on the grounds that P2 already has a sufficient physical cause. I'm suggesting that even independently of the exclusion-style worries that Kim raises, this supposition fails to vindicate the rationality of certain instances of mental-to-mental causation. I also think Kim is wrong to claim that this is the *only* coherent story available, as Option 1 is also coherent, albeit unsatisfactory due to its inability to overcome the Timing Problem.

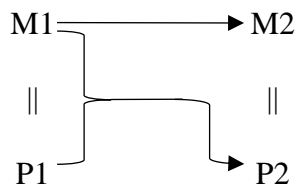
I conclude that the Timing Problem applies to both Options 1 and 2. Setting aside any exclusion-style worries about the potential redundancy of M1's causation of M2 once a cause of M2's physical base has been identified, dualists still cannot avoid positing an implausibly coincidental coordination in the timing of the causal processes terminating, respectively, in M2 and P2, regardless of whether these processes are viewed as issuing from two distinct causes (viz. M1 and P1, *à la* Option 1), or the same cause (viz. M1, *à la* Option 2).

I mentioned in Section 1 that while I'm assuming for simplicity's sake that supervenience is a synchronic relation, this is inessential to the basic problem at issue. We can now see why this is so. For even if mental states occur subsequent to the physical states they supervene on, the Timing Problem still arises, as we can still ask (in the case of Option 1) how M1's causation of M2 and P1's causation of P2 come to be coordinated in such a way that P1 causes P2 to occur at just the right time, so that it gives rise to M2 at the exact moment that M1 causes it to occur, or (in the case of Option 2) how M1 manages to coordinate the timing of its causation of M2 with its causation of P2 so as to ensure this same result. In both cases, the basic problem for dualists concerns the implausibly coincidental nature of the coordination between the distinct causal processes terminating, respectively, in M2 and P2. While the assumption that supervenience is synchronic makes this problem starker, the central issue concerns the coordination in the timing of the two processes, which remains implausibly coincidental even if P2 is produced prior to M2, but at just the right time so that P2 gives rise to M2 at the exact moment that M1 causes M2 to occur via the separate, direct causal relation between them. Having made this point, I'll revert to the simplifying assumption that supervenience is synchronic for the remainder of the paper.

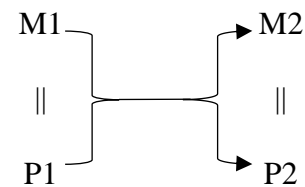
4. A third way?

While I've argued that the Timing Problem applies to both Options 1 and 2, dualists of the strong emergentist stripe might object that there is another, third option that has not been considered. On this view, while M1 possesses causal powers not possessed by its physical base P1, M1 nevertheless causes P2 jointly with P1, via a *single* causal process that both P1 and M1 contribute to (the idea being that, unlike a case of overdetermination, both the causal powers of P1 and the additional powers of M1 are needed to bring P2 about). M1 can then be said to cause M2 either by itself or again in conjunction with P1, via a single causal process that both contribute to (Wilson 2021, pp.51-3). Call this Option 3, represented in the diagrams below (with Option 3a representing the variant on which M1 causes M2 by itself, and Option 3b the variant on which M1 causes both M2 and P2 in conjunction with P1).

Option 3a



Option 3b



On Option 3a, where M1 causes M2 independently of the process whereby it produces P2 jointly with P1, the same issue arises of how these two distinct processes manage to produce their respective effects at the same time. Indeed, this proposal can essentially be seen as another variant of Option 2, which differs from the previous variants in that M1's physical base is now presumed to "chip in" by doing some of the causal work needed to bring about P2. This modification, however, leaves the Timing Problem unaddressed.

Option 3b may seem more promising. For if M1 and P1 can jointly bring about M2 via the *same* process whereby they produce P2, then it seems that the dualist may be able to employ the same solution to the Timing Problem that physicalists make use of after all; i.e. they can hold that since there is only a *single* causal process connecting M1 and P1 to their joint mental and physical effects, no question arises as to how two distinct processes manage to produce M2 and P2 at the same time. For the dualist, however, things aren't quite so simple. Since they treat M2 as irreducible to P2 (where this is again taken to imply that M2 has certain causal powers not possessed by P2), they *can't* treat the causation of M2 as *identical* to or *consisting in* the causing of P2. For even granting that M1 and P1 somehow combine their respective causal powers to jointly produce P2, more causal work will still need to be done to produce the *additional* causal powers possessed by M2. Since the same causal process can produce multiple distinct effects, the single causal process issuing jointly from M1 and P1 might be adequate to do this further causal work and thereby produce M2 as well. The fact remains, however, that this effect of the process would be distinct from and irreducible to its causation of P2, and the question would therefore still arise as to how the joint causal process to which M1 and P1 contribute manages to produce these distinct effects at the same time.¹⁶

One possibility might be for the dualist to hold that so long as there is *some* overlap in M2's and P2's causal powers (so that they share at least one token power in common, even though each has some powers that the other lacks), and M1 and P1 jointly cause M2 and P2 (including the token power(s) that M2 and P2 share in common), no questions need arise as to how M1 and P1 cause M2 and P2 to occur at the same time. For if two states share a token causal power in common,

¹⁶ Given that P2 is sufficient for M2, one might try to avoid this issue by holding (*à la* Option 2*) that M1 and P1 jointly bring M2 and its additional causal powers about only *indirectly*, by causing P2, which in turn gives rise to the additional powers possessed by M2. But this is of course open to the same objections raised against Option 2* in the previous section.

then they *can't but* occur at the same time. Hence, by causing this shared feature of M2 and P2, M1 and P1 have done all that's needed to ensure the simultaneous occurrence of their effects.

I don't think this resolves the issue, for two reasons. First, while the assumption that two states share a token causal power might be taken to imply that there is *some* point in time at which they both exist, I don't see how it can guarantee that the two states *come into existence* at the same time. But the question at hand is precisely how M1 and P1 manage to cause M2 and P2 in such a way that the onset of the one effect coincides with that of the other. Suppose that M2 and P2's causal powers overlap in the manner suggested, so that P2 has causal powers CP1 and CP2, M2 has powers CP2 and CP3, and P2 and M2 thus share CP2 in common. Assuming that neither state could exist in the absence of any of the causal powers associated with it (so that P2 can't exist without both CP1 and CP2, nor M2 without both CP2 and CP3), the foregoing supposition is compatible with possibility that M1 and P1 jointly cause P2 by causing CP1 and CP2, and only *subsequently* cause the additional power CP3 that's necessary for the occurrence of M2 (perhaps as a delayed effect of the same causal process whereby they caused P2). Or, conversely, P1 and P2 might first jointly cause M2 by causing CP2 and CP3, and only subsequently cause CP1. In short, the fact that two states share a token power in common doesn't entail that the token power in question is possessed by both states throughout the entire course of its existence. The possibility is therefore left open that CP2 initially belongs only to P2 or M2, and only subsequently comes to be shared by both states (*viz.* at the point when M1 and P1 jointly cause the additional powers that the other effect, be it M2 or P2, can't exist without). The conjoined assumptions (a) that M1 and P1 jointly produce M2 and P2 and (b) that M2 and P2 share some but not all of their causal powers in common thus aren't enough to explain how M1 and P1 are able to cause M2 and P2 to occur (*i.e.* come into existence) at the same time. Of course, the two effects *must* coincide in this way,

since M2 supervenes on P2, but as stressed repeatedly above, the supervenience of M2 on P2 doesn't explain how their causes manage to produce them in a way that conforms to this fact. The present point is that adding in assumptions (a) and (b) does nothing to improve the situation.

Second, even setting the former objection aside, the proposed view seems rather *ad hoc*. What reason could we have to think that the causal powers of mental states and their physical bases only *partially* overlap in this way? How are we to determine how far the boundaries of the presumed overlap extend in any given case, or explain why they lie precisely where they do? I see no easy way for the dualist to answer these questions. But without some systematic explanation for the proposed partial overlap in causal powers, the only reason to accept the view seems to be the solution it's supposed to offer to the Timing Problem, which, as we've seen, proves ineffective. And thus we are left with no reason to accept it at all.

It's worth noting that this issue doesn't arise for the standard powers-based subset view. Since that view includes all the causal powers of any mental state among those of its physical base, we needn't ask which of a mental state's powers are possessed uniquely by it and which are shared in common with its physical base, or explain why this boundary lies precisely where it does in any given case. Instead, we simply identify all the powers possessed by any mental state with powers possessed by its physical base and acknowledge that the latter may have certain additional powers as well. In this way, we get a uniform, systematic treatment of all such cases. Contrast this with the alternative, partial overlap view. Since it treats both mental states and their physical bases as possessing certain causal powers that the other lacks, it *does* face the question of how we are to determine which powers a given mental state and its physical base share in common, why the boundaries of this overlap extend precisely this far (and no further), and why we should expect the powers of other mental states to partially overlap with those of their physical bases in this same

way. The absence of any similarly uniform and systematic answer to these questions leaves the partial overlap view open to the second objection raised above.

There is another gambit that the dualist might use to address these issues, but it comes at a considerable cost. Here the idea is to invert the powers-based subset view adopted by physicalists by holding that M2's causal powers are a *superset* (rather than a subset) of the powers of its physical base P2. This avoids the second objection to the partial overlap proposal in the same way that the standard powers-based subset view does. For if a mental state's causal powers always fully include those of its physical base, then we needn't worry how we are to determine what the boundaries of the partial overlap between the causal powers of a mental state and its physical base are in any given case, or why this boundary lies precisely where it does. We can instead simply treat the causal powers of any mental state as including all the powers of its physical base while acknowledging that the mental state may possess certain additional powers as well, thereby providing the same kind of uniform, systematic treatment of such cases that the standard powers-based subset view does. The first objection to the partial overlap proposal is also avoided. For if M2's causal powers include *all* of P2's (and the causation of all of P2's powers is sufficient for the causation of P2), then M1 and P1's joint causation of M2 *guarantees* the simultaneous occurrence of P2, since in causing M2, the joint causal process issuing from M1 and P1 will have caused all of P2's causal powers, and thus P2 as well. There is consequently no mystery as to how this process manages to cause M2 and P2 to occur at the same time, for its causing of P2 is *included in* its causing of M2. As in the physicalist version of the powers-based subset model, there is likewise no problem concerning the coordination in the timing of two distinct causal processes terminating in M2 and P2, for there is only one causing involved here (Wilson 2021, p.53).

I have three worries about this move. First, it seems to get the explanatory relation between supervenient and subvenient states the wrong way around. Part of what we mean in saying that one type of state supervenes on another is that the latter provides the conditions for the former's occurrence, so that the occurrence of the supervenient states is to be explained at least partly in terms of the states on which they supervene. The present proposal, however, explains the timing of P2's occurrence in terms of M2's, on the grounds that since P2's causal powers are a subset of M2's, the causation of M2 necessarily brings P2 along with it. In doing so, the proposal strikes me as inverting the proper order of explanation by attempting to explain the subvenient in terms of the supervenient. Indeed, it would seem more natural, on this view, to say that P2 supervenes on M2 than the other way around (and, more generally, that physical "bases" supervene on the mental states that are supposed to supervene on *them*).

Second, and relatedly, if the standard physicalist version of the powers-based subset strategy implies that mental states are nothing over and above their physical bases, the dualist inversion of that strategy must by the same token imply that a mental state's physical base is in fact nothing over and above the mental state that's supposed to supervene on it. But dualism, as I understand it, is precisely the view that mental states are distinct from, irreducible to, and genuinely something over and above their physical bases *and vice versa*. For this reason, the proposal strikes me as potentially incompatible with dualism, as dualists must hold that mental and physical states are both fundamental features of reality, each of which is genuinely something over and above the other.

Third, since the proposal avoids the Timing Problem only on the assumption that *all* the causal powers of a mental state's physical base are included among those of the mental state itself, it makes it impossible for that same type of mental state to occur without the same type of physical

base. For it is impossible, on this assumption, for anything to cause that type of mental state to occur without thereby causing the physical base that accompanies it as well. Indeed, it is this very feature of the proposal that was supposed to provide a solution to the Timing Problem. For this reason, though, the proposal is incompatible with the assumption that mental states are multiply realizable; for each type of mental state, there will thus be a single type of physical state that always accompanies it (viz. that physical state whose causal powers are fully included in those of the mental state that it is the base of). And since each mental state is also presumed to supervene on its unique physical base, the physical state in question can't occur without the mental state either. The two will thus always co-occur. While this isn't *incompatible* with dualism, it nevertheless puts the dualist in a precarious position, as they'll now be under pressure to explain why we should persist in distinguishing each mental state from its constant physical companion and assigning certain causal powers *only* to the mental member of each pair, instead of simply reducing the former to the latter and assigning all of the mental state's causal powers to the physical state that it's identified with.

As these three objections to the inverted powers-based subset strategy seem at least as daunting as the Timing Problem itself, I don't think it provides a solution to the problem. And since we've seen that Option 3 cannot elude the problem without this stratagem, I conclude that this third option fares no better in avoiding the Timing Problem than Options 1 and 2.

5. Causation to the rescue?

Perhaps the Timing Problem is really just a pseudo-problem, born of an overly simplistic conception of causation. Sure, if one conceives of causation as a special kind of "juice" that causes

transmit to their effects, then it may seem puzzling how M2 manages to receive its injection of causal juice from M1 at the same moment that P2 gets juiced up by M1 or P1. But of course one needn't conceive of causation in this way, and most contemporary theories of causation (e.g. regularity theories, counterfactual theories, and probability-raising theories) aren't committed to any special causal juice of this sort.

Regardless of which theory of causation one adopts, however, it seems to me that the problem still arises. Whether we treat the causal relations connecting M2 and P2 to their cause(s) as consisting in certain nomic, counterfactual, and/or probabilistic relations between these states, we still face the question of why, in any instance of mental-to-mental causation, there are always these two distinct nomic, counterfactual, or probabilistic relations between M1 and M2 (on the one hand) and M1 or P1 and P2 (on the other) such that M1 causes M2 to occur at the exact moment that it or P1 causes P2 to occur. The coordination in the timing of these two causal relations is equally mysterious whether we construe it as a coordination in laws, a coordination in relations of counterfactual dependence, a coordination in increases in probability, or any other kind of relation that we might seek to analyze causation in terms of.

Fans of Option 1 might respond by holding that the relevant nomic, probabilistic, or counterfactual relation between M1 and M2 holds *in virtue of* a corresponding relation between P1 and P2, so that, e.g., the reason why M1 caused M2 to occur at the same time that P1 caused P2 to occur is that P1 is nomically sufficient for P2 and, in virtue of this, M1 is also nomically sufficient for M2's occurring at the same time P2 does, because M1 supervenes on P1 and M2 supervenes on P2 (and likewise, *mutatis mutandis*, for alternative accounts that analyze causation in terms of counterfactuals, probability-raising, or some other relation). It seems to me, however, that any such account is bound to violate the epiphenomenalist constraint. For whatever relation

(be it nomic, counterfactual, probabilistic, etc.) between M1 and M2 that one cites as that by virtue of which the former causes the latter, if this relation obtains solely in virtue of some more fundamental relation between P1 and P2, then epiphenomenalists might reasonably grant that M1 and M2 are related in the way described while denying that M1 causes M2.

In support of this, epiphenomenalists may note that in structurally similar non-mental cases, we typically deny that there is any causal relation between the non-mental analogues of M1 and M2. Here we're looking for a case wherein (a) two non-mental states, S1 and S2, supervene on two physical states, P1 and P2, (b) S1 and S2 are irreducible to P1 and P2, (c) any nomic, counterfactual, or probabilistic relation between S1 and S2 holds solely in virtue of some corresponding relation between P1 and P2, and (d) we're inclined (due to (c)) to deny that S1 causes S2. Let S1 be the position of my shadow at t , S2 its position at $t+1$, and P1 and P2 the physical states of my body and its position in relation to the predominant source of light at those times (Kim 1998, p.45; Kallestrup 2006, pp.475-6).¹⁷ While there are various nomic, counterfactual, and probabilistic relations between S1 and S2, we don't take these to show that S1 causes S2, precisely because these relations hold solely in virtue of various corresponding relations between P1 and P2, which suggests that if anything causes S2, it's P1 (via P2), not S1. Given the structural similarity between the two cases, epiphenomenalists might reasonably ask how dualists can maintain that the relation between M1 and M2 is causal while that between S1 and S2 is not. Any attempt to explain the coordination in the timing of M1's causation of M2 and P1's causation of P2 by analyzing causation in terms of some other relation R and treating the R-relation between M1 and M2 as holding only in virtue of a corresponding R-relation between P1 and P2 will I think

¹⁷ Or, more specifically, at times immediately prior to t and $t+1$ (the difference being equal to the time it takes for light to travel from the relevant parts of my body to the surface on which my shadow is cast). This requires fudging our running assumption that supervenience is synchronic, but as explained at the end of Section 3, nothing essential hangs on this.

run afoul of the epiphenomenalist constraint in this way. I therefore don't think the problem that Option 1 faces can be dismissed as relying on an overly simplistic conception of causation. It persists regardless of which theory of causation one adopts.

Perhaps the foregoing response could prove more effective for Option 2. If we understand causation as consisting in some form of nomic correlation, counterfactual dependence, or probability-raising, then the idea that M1 causes both M2 and P2 might appear entirely unproblematic. If, e.g., M1 is nomically correlated with P2, then given that M2 supervenes on P2, M1 will also be nomically correlated with M2 as a matter of course. Consequently, if we analyze causation in terms of nomic correlation, it may seem completely natural for M1 to directly cause M2 to occur at the same moment that it causes P2 (and likewise, *mutatis mutandis*, for accounts that analyze causation in terms of counterfactuals or probability-raising).

This proposal runs into the same difficulty as the previous one. For if we view the situation in the way Option 2 suggests, any nomic, counterfactual, or probabilistic relations between M1 and M2 seem to hold solely in virtue of certain corresponding relations between M1 and P2, and P2 and M2. Any appeal to the nomic, probabilistic, or counterfactual relations between M1 and M2 as grounds for postulating a *direct* causal relation between them in addition to the *indirect* one that proceeds via P2 will consequently violate the epiphenomenalist constraint. For even supposing that M1 causes P2, and that M1 and M2 are nomically, counterfactually, and probabilistically linked as a result of this, an epiphenomenalist might still deny that there is an additional, direct causal relation between M1 and M2. We are thereby forced to the conclusion that mental states never directly cause other mental states, which was rejected in Section 3 for its inability to provide for the rationality of certain instances of mental-to-mental causation. The problems that Option 2

faces thus also cannot be dismissed as relying on an overly simplistic conception of causation. Regardless of which theory of causation one adopts, the Timing Problem still stands.

6. Timing, nomic convergence, overdetermination, and exclusion

The Timing Problem is similar in some respects to a problem that Melnyk (2003) and Sharpe (2015) raise for dualist accounts of mental-to-physical causation, which is that whenever a mental state M1 and a physical state P1 both cause a physical effect P2, some account must be given for why there happen to be two distinct laws converging on the same effect, one correlating M1 with P2 and another correlating P1 with P2.¹⁸ Such systematic nomic convergence certainly cries out for explanation, but given the dualist's view that mental and physical facts are irreducible to one another, it's unclear what kind of explanation they can offer. In contrast, the question I'm raising is how the causal process or processes issuing from M1 and P1 manage to terminate in two *different* effects (M2 and P2) at the exact same time. The suspiciously fortuitous convergence is thus, in this case, a convergence in the *timing* with which the process or processes issuing from M1 and P1 produce two distinct effects, rather than (as in type of case Melnyk and Sharpe discuss) a convergence on a single effect.

As noted above, though, the Timing Problem applies equally in cases where two distinct causal processes are presumed to terminate in the same effect. It may therefore be that the nomic convergence that Melnyk and Sharpe draw attention to in dualist accounts of mental-to-physical causation seems objectionable at least partly because it raises the question of how distinct mental and physical causal processes are able to so regularly and systematically coordinate their timing as to terminate in the same effect at the same moment, without either preempting the other. If this

¹⁸ See also Schiffer (1987, p.149).

is so, then the objection that Melnyk and Sharpe raise ultimately rests on the Timing Problem, or may perhaps just be a different way of formulating it as it applies to dualist accounts of mental-to-physical causation.¹⁹

I suspect that the objection to systematic overdetermination that the Exclusion Argument trades on may likewise stem at least partly from a sense of how implausibly coincidental it would be for the causes of systematically overdetermined effects to so regularly coordinate their timing in this way. To the extent that this is so, the Exclusion Argument may turn out to rest on the Timing Problem as well. Of course, as Sider (2003) points out, there are many reasons one might object to systematic overdetermination, not all of which are good ones. As it features in the Exclusion Argument, the basic worry seems to be that the postulation of non-physical mental causes for effects that can already be explained in physical terms is superfluous, and thus unmotivated. Hence Kim's (1998, p.37) remark: "Given that [any physical effect] p [that a non-physical mental event m might be said to cause already] has a physical cause p^* , what causal work is left for m to contribute?" Putting the point this way, the rejection of systematic overdetermination that figures in the Exclusion Argument can be seen as a version of what Sider (2003, p.723) calls the "epistemic objection", i.e. that "*we have no reason to believe in overdetermining entities.*"²⁰

¹⁹ The strong emergentist position discussed in Section 4 may be better able to address this version of the Timing Problem than other forms of dualism. Since, on this view, M1 and P1 produce their joint effects via a *single* process to which both contribute, no question arises as to how two *distinct* causal processes issuing respectively from M1 and P1 manage to terminate in the same effect at the same time. And since, in contrast to cases of mental-to-mental causation, there is in the mental-to-physical case only a *single effect* involved (viz. P2), the position doesn't face the issue raised in Section 4 as to how the single process issuing from M1 and P1 manages to produce two *distinct* effects at the same time. That said, since advocates of this view hold that mental states have causal powers not possessed by their physical bases, they will still need to explain what justifies us in treating M1 and P1's joint causation of P2 as accomplished via a *single* causal process, rather than two, one of which consists in the manifestation of P1's causal powers, and the other of which consists in the manifestation of those additional causal powers that are unique to M1.

²⁰ Sider (2003, p.725) claims that "the epistemic interpretation of the [Exclusion] argument does not fit the texts of actual philosophers of mind," but I think it'd be more accurate to say that advocates of the Exclusion Argument have often not been entirely clear as to what their grounds for rejecting systematic overdetermination are. At least in some cases, the opposition to overdetermination seems to stem at least partly from Sider's "epistemic objection," as the

The Timing Problem may, however, supply an additional reason to reject systematic overdetermination, viz. that it would be implausibly coincidental for distinct causal processes to so regularly coordinate their timing as to terminate in the same effect at the same moment, without either preempting the other. Sider (2003, p.722-3) calls this objection to overdetermination the “coincidence objection,” i.e. that “*systematic overdetermination would be a coincidence.*” While I agree with Sider that this objection fails to get any traction in some cases wherein the overdetermining causes are necessarily correlated in such a way that one can’t occur without the other, I don’t think this suffices to allay any worries about systematic overdetermination stemming from the Timing Problem. For as noted above, the Timing Problem still arises even if the distinct causal processes whose timing is so mysteriously coordinated issue from the *same* cause. Insofar as one’s worries about systematic overdetermination stem from befuddlement as to how distinct causal processes could manage to so regularly coordinate as to terminate in the same effect at the same time without either preempting the other, the suggestion that the causes these processes issue from are necessarily correlated with one another thus won’t be of much help.²¹ For even if there is just *one* cause involved, so long as the causal *processes* issuing from it are distinct from one another, the question still remains as to how these processes manage to “synch up” in the requisite way.

If this is correct, then Sider (2003, p.725) is wrong to claim that “[t]he epistemic objection is the only sensible objection to overdetermination.” For even if the epistemic objection can be met,

quote from Kim illustrates. In other cases, the opposition may instead stem from the Timing Problem, or from a variety of reasons that are not clearly distinguished from one another.

²¹ Sharpe (2015) likewise argues that responses to the Exclusion Argument (e.g. Bennett’s (2003)) that seek to allay worries about overdetermination by positing a modal connection between the mental and physical causes of a given effect leave the problem that he and Melnyk (2003) raise for non-reductive accounts of mental-to-physical causation unaddressed. If the problem that he and Melnyk draw attention to rests on, or is a different way of formulating, the Timing Problem, this makes perfect sense.

one still might sensibly balk at how implausibly coincidental it would be for distinct causal processes to so regularly coordinate their timing as to terminate in the same effect at the same time without either preempting the other (*even if* these processes issue from the same cause, or causes that are necessarily correlated with one another). Even if the epistemic version of the Exclusion Argument can be rebutted, dualists thus still face the Timing Problem *and* an alternative formulation of the Exclusion Argument that can be derived from it, wherein the systematic overdetermination of physical effects by mental and physical causes is rejected *not* on the epistemic grounds that we have no reason to believe in additional, non-physical mental causes of effects that can already be explained in purely physical terms, but instead on the grounds that for these supposedly distinct types of causes to so regularly coordinate their timing would require a coincidence too big to accept.²²

7. Conclusion

In cases wherein a mental state M2 is caused by another mental state M1, dualists who treat mental states as supervening on physical states cannot avoid positing an implausibly coincidental coordination between the distinct causal processes terminating, respectively, in M2 and in M2's physical base such that these processes manage to produce their respective effects at the exact same time. We've seen that this problem, the Timing Problem, arises regardless of whether these processes are viewed as issuing from two distinct causes (*à la* Option 1) or the same cause (*à la* Option 2), and regardless of which specific theory of causation one adopts. A third option of treating M1 and its physical base as producing M2 and its physical base by a single causal process that they both contribute to was found to come up short as well.

²² I again stress that strong emergentists may have a way of avoiding this issue. See note 19.

The Timing Problem is rendered all the more significant by the fact that it doesn't depend on the kinds of worries about competition between mental and physical states for causal efficacy that are expressed in the epistemic version of the Exclusion Argument for reductive physicalism, or on the assumption that the physical realm is causally closed. Even setting aside all exclusion-style concerns about the potential redundancy of assigning an additional mental cause to a mental effect whose occurrence is already explained by the physical causation of its physical base, we are *still* left with an implausibly miraculous coordination in the timing of the causation of the mental effect and its physical base. This strikes me as an important but underappreciated point. For given the degree to which worries about the potential redundancy of non-physical mental causes have dominated recent discussions of mental causation, it sometimes seems as though these discussions are being carried out under the false assumption that once such worries have been laid to rest, the dualist's problems with mental causation are over.²³

²³ Many thanks to Anthony Nguyen, audience members at the 2020 meeting of the APA Central Division, and two anonymous reviewers for their helpful comments on earlier versions of this paper.

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