

# *Causal Exclusion and Grounding*

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## ABSTRACT

In this contribution, I critically discuss the thesis, advanced by some recent writers, that nonreductive physicalists can solve the problem of causal exclusion by resorting to the metaphysical notion of grounding. After discussing the many problems confronted by very recent versions of this proposal, I conclude that a version of Nonreductive Physicalism framed in terms of a notion of realization of properties is in a better position than Grounding Physicalism in order to successfully deal with a notoriously complex metaphysical issue such as the causal exclusion problem.

Jaegwon Kim's work on the problem of mental causation remains as an outstanding contribution to contemporary philosophy. One of the many important issues he raised is what he called the supervenience argument and now is most commonly referred to as the problem of causal exclusion. Twenty years ago, I published a paper on Kim's Causal Exclusion argument (Pineda 2002). It seemed to me a formidable problem for physicalists. On the one hand, Nonreductive Physicalism appeared as the most convincing form of physicalism; on the other hand, Kim's argument led to the conclusion that, if Nonreductive Physicalism is correct, then the mind has no causal influence on the (physical) world. My article clarified some of the premises of the argument. I argued, for instance, that the Principle of Explanatory Exclusion, according to which there cannot be two independent and complete explanations of the same (token) event, was in fact not needed. One can, I argued, offer a version of the argument without such a premise which would be as powerful as the original one (actually, more powerful given that the principle appeared controversial to many critics). The rest of the paper was a critical discussion of some of the objections to the argument (basically, Yablo's objection in Yablo 1992 and the overgeneralization problem, Block 2003). My overall conclusion was negative: none of the objections looked convincing enough.

Twenty years later, I still look at the exclusion argument as a formidable challenge to physicalists. In fact, the exclusion problem has remained a basic concern. All these years have witnessed a considerable amount of new work full of interesting ideas. But I still think that a convincing solution to the problem is pending. I cannot do justice here to all of these new contributions, nor discuss properly most of them. I will therefore concentrate on just one issue: the thesis that nonreductive physicalists can solve the problem of causal exclusion by resorting to the metaphysical notion of grounding.

There are, I think, some good reasons for focusing on this particular thesis. First, the notion of grounding has been perhaps the most important metaphysical novelty in recent years. There are now hundreds of papers discussing it and attempting to apply it to different metaphysical problems, including of course the causal exclusion problem. It can be truly said that the impact of grounding on metaphysicians has been similar to the (re)discovery of supervenience several decades ago. Second, quite recently some writers

have insisted that a nonreductive physicalist thesis framed with the aid of this notion of grounding can simply overcome the causal exclusion problem. So, I think it is good to examine these works with some care and see whether they fulfill their promise. As the reader can now imagine, however, my verdict will be negative.

In the first section, I will briefly state the causal exclusion argument and the types of solutions to it that have been suggested in the specialized literature. This will provide us with a map of possible responses where we can then locate grounding solutions. In the second section, I will critically discuss two recent papers where it is argued that Grounding Physicalism averts the exclusion problem. In the third section, I will criticize the original suggestion made by a recent writer that grounding serves to defend an emergentist physicalist solution to the exclusion problem. Finally, in the fourth section, I'll try to summarize and drive home some important conclusions.

## **1. The Causal Exclusion Argument**

In a series of writings (Kim 1993, 1998, 2005), Jaegwon Kim famously argued that Nonreductive Physicalism cannot properly account for mental causation. Most physicalists embraced then, as they still do now, a nonreductive version of physicalism according to which mental properties are dependent on, yet not identical to, physical properties, given some convincing arguments about the physical multiple realizability of the mental.<sup>1</sup> Kim's exclusion argument can be seen as a reductio of nonreductivism as it would compel us to accept, very implausibly, that mental properties are not causally efficacious. The argument made some common metaphysical assumptions about causation which nonreductivists quite generally accept. One assumption is that the relata of causation are events; another assumption is the so-called Principle of the Nomological Character of Causality according to which events cause and are caused in virtue of instantiating certain properties featured in causal laws. One can formulate the argument, by contrast, by remaining uncommitted about the nature of events in the following sense: the argument works both with a coarse-grained account of events, according to which a token event may involve the instantiation of different properties, or with a fine-grained conception according to which each token event is exhausted by the instantiation of a single property. Also, Kim's argument assumed that all physicalists should embrace the Principle of the Causal Closure of the Physical Domain (PCCP), according to which a physical event (involving the instantiation of a physical property) which is caused has a complete physical cause.<sup>2</sup>

With this background, we can now offer a formulation of the exclusion argument as follows. Suppose we want an instantiation of a mental property M1 to cause the instantiation of a physical property Q (e.g., that my desire to quench thirst causes my reaching a glass of water with my arm). Given Nonreductive Physicalism, such instantiation of M1 depends on the instantiation of a physical property P and, given the

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<sup>1</sup> The metaphysical dependence here is supposed to be non-causal and to hold between simultaneous instantiations of properties.

<sup>2</sup> I formulate the principle (PCCP) by speaking of a complete physical cause instead of the more common 'sufficient physical cause' to avoid any commitment to physical causal determinism which is not required for the exclusion argument.

principle (PCCP), the instantiation of Q has a complete physical cause (i.e., involving only the instantiation of physical properties). Let us assume, as it is common in the discussion of the exclusion argument (this just makes things simpler but nothing important hinges on it), that such complete cause involves P, the physical property on which the mental property M1 depends. Now, given that P causes Q<sup>3</sup> and that there is a complete physical cause of Q which leaves M1 out, we may wonder whether M1 in fact does cause Q as well. After all, we can explain why the instantiation of Q follows the instantiation of M1 without assuming a causal relation between them. P's causing of Q together with the metaphysical dependence relation between M1 and P would afford such explanation, since such dependence is understood to entail that the instantiation of P is metaphysically sufficient for the instantiation of M1. So, it seems we lack any good reason to hold that M1 causes Q. Suppose now we want a mental property M1 to cause another mental property M2 (e.g., that my fear of my neighbor's dog causes my wanting to escape from the dog). According to Nonreductive Physicalism, the instantiation of M2 metaphysically depends on the instantiation of a physical property Q. Given that the instantiation of Q is metaphysically sufficient for the instantiation of M2, it would seem that in order to cause M2 a property like M1 should cause Q as well. This is an assumption that Kim first called the Principle of Causal Realization (PCR), but afterwards it has been most commonly referred to as the principle of Downward Causation. The fact is that, given the principle (PCR) which the nonreductivist physicalist is supposed to endorse, then cases of mental-to-mental causation require cases of mental-to-physical causation which we saw are objectionable. The upshot of course is that a mental property like M1 seems devoid of causal powers. Its causal role seems to be screened off by those of the physical properties on which it depends.

This is in bare bones the causal exclusion problem. I will finish this section by mentioning the most important reactions to it we can find in the literature and by pointing out where the appeal to grounding is supposed to lie in this classification. I will first mention reactions which are incompatible with Nonreductive Physicalism and which therefore grant the force of the argument against nonreductivism. One reaction is to simply identify mental properties with physical properties. This is of course incompatible with Nonreductive Physicalism and has the problem of explaining away all the evidence, both philosophical and empirical, against such identification. Another option is to give up (PCCP).<sup>4</sup> This is usually thought to be incompatible with any physicalist position, including of course a nonreductivist one, since then there will be physical events such that a mental (or otherwise non-physical) property features in a

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<sup>3</sup> Properly speaking, it is only instantiations of properties which are supposed to cause and to be caused rather than properties themselves. I will, however, switch to this less precise but also less verbose formulation unless we are in a context where it is relevant to stick to the more precise formulation.

<sup>4</sup> Arguments against (PCCP) differ widely in the literature. Two of the most common ones, at least in connection with the causal exclusion problem, are Yablo's proportionality constraint on causality, according to which causes should be proportionate to their effects (Yablo 1992), and different varieties of Emergentism. Proportionality makes us regard causal relations which are realization-insensitive (i.e., such that the effect occurs whenever the mental property occurs regardless of which is its particular physical realizer), as causal relations where the cause is only the mental property and none of their physical realizers. Emergentist views differ in scope and in other important details but they tend to assume that mental properties emerge in an unpredictable and unexplainable way from their physical bases and that they have causal powers which are novel and cannot be reduced to the powers of their physical bases. For discussions of Emergentism, see McLaughlin (1992) and Wilson (2016a).

complete causal explanation of them. This seems to entail that there are empirical facts, namely the causation of such physical events, which do not wholly depend on physical facts (for a discussion of this entailment, see section 3 below).

Leaving these options aside as they are incompatible to Nonreductive Physicalism, the available space of responses to the causal exclusion argument narrows considerably into just two reactions. One is to give up the principle (PCR). According to this, although mental properties cannot cause physical properties, still they can cause other mental properties (or properties at the same metaphysical level than mental properties; see, for instance, Gibbons 2006).<sup>5</sup> This of course leaves us with the odd view that a property may cause the instantiation of another without causing that which is metaphysically responsible for such instantiation.

By far, however, the most common reaction is to dispute the exclusionary claim that there is no good reason to hold that a mental property M1 causes a physical property Q. As I see it, the dialectics of the situation requires from the nonreductivist that she offers a positive reason why M1 is also a cause of Q even though there is already a complete physical cause for Q. Otherwise, exclusionary reasoning affords us a reason against this causal claim and in the absence of another reason strong enough to counterbalance it, the dialectical position of the nonreductivist appears too weak. As it is commonly observed, offering such counterbalancing reason amounts to defending that the physical effect Q is in some sense causally overdetermined. The “in some sense” is important here. Standard cases of causal overdetermination are usually defined as an effect having two complete and independent causes (as in the most cited case of two shooters killing their victim at the same time). This is of course not the case with mental-to-physical causation according to Nonreductive Physicalism, since the mental cause is supposed to depend on the physical one. So, according to the nonreductivist, mental-to-physical causation does not entail massive cases<sup>6</sup> of causal overdetermination as the notion is commonly understood. But this in itself does not render the postulation of such cases less objectionable. In fact, according to a common view about properties, properties are to be postulated only if they play a (distinctive) causal role. So, the nonreductivist stance would seem to recommend outright elimination of mental properties (Sider 2003). In sum, Nonreductive Physicalism postulates massive cases of non-standard causal overdetermination and, in the absence of a positive reason for accepting this, we had better avoid such superabundance of causes.

Positive reasons to accept the sort of massive causal overdetermination that Nonreductive Physicalism seems to require are the bulk of the most common defenses from the causal exclusion argument. Some are not very elaborate and are therefore vulnerable. One idea is that, precisely on account of the metaphysical dependence of the mental cause on the physical cause, such non-standard causal overdetermination is acceptable because the co-occurrence of the physical and the mental cause is never a coincidence. Notice, however, that this is an argument addressing that the sort of causal overdetermination required by Nonreductive Physicalism is massive rather than rare.

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<sup>5</sup> Nonreductive physicalists tend to assume a hierarchical view of the world according to which empirical properties belong to layers defined by relations of metaphysical dependence.

<sup>6</sup> Massive cases, since the principle (PCCP) requires that each physical effect with a mental cause has always a complete physical cause where the mental cause is missing (assuming nonreductivism).

Standard cases of overdetermination are rare in nature, this is the idea, because they require a remarkable coincidence, whereas the sort of non-standard cases postulated by Nonreductive Physicalism are never coincidental. But this will however not convince the philosopher that is concerned with whether there are non-standard cases of causal overdetermination, not with whether they are rare or massive. And this is precisely the point at stake when confronting the causal exclusion problem. Reasons against accepting such cases, alongside the exclusionary ones, include that we do not have independent plausible cases of such non-standard overdetermination. In all independently established cases of causal overdetermination there are effects which are not overdetermined by the two causes and are only effects of one of the causes. For instance, in the example of the two shooters the death of the victim is overdetermined but there are several other effects caused by one shot and not by the other, or caused by the joint instantiation of both causes, but not by each cause alone (Braddon-Mitchell & Jackson 1996). But this is not so with the sort of non-standard causal overdetermination that Nonreductive Physicalism postulates, since (PCCP) forbids that the mental cause M1 has an effect not already caused by the physical cause P.<sup>7</sup> So, it is not just that the sort of non-standard causal overdetermination required by nonreductivism is massive and not coincidental, it is that it postulates a situation for which we lack any independent evidence (i.e., evidence which does not presuppose the very issue that is at stake, namely, that mental physically multiple realized properties are causes).

More elaborate responses try to offer a positive reason that makes the sort of non-standard causal overdetermination required acceptable. A reason that might be powerful enough to counterbalance all the important objections that we have just summarized. One of the most remarkable efforts here has been to convince us that there is a notion of causation, which is called the difference-making account, on which the sort of non-standard causal overdetermination required is not problematic at all and, on the contrary, it simply follows from that account when one takes for granted the assumptions of Nonreductive Physicalism. There are different ways of substantiating this attempt depending on the sort of difference-making account of causation postulated. To my knowledge, the two most influential ones are the counterfactual account (roughly, that for M1 to cause Q is for Q to counterfactually depend on M1) as defended in (Lewis 1973a, 1973b; List & Menzies 2009) and the interventionist account (roughly, M1 causes Q if, and only if, a suitable intervention on M1 alters Q accordingly) as defended in (Woodward 2015; Polger et al. 2018). I cannot do justice to these elaborate responses here nor justify my skepticism towards them.

Another elaborate response along similar lines will be the object of discussion of the rest of the paper. The idea that some writers have recently defended is that what makes the non-standard cases of causal overdetermination acceptable, and in fact to be expected and natural given the assumptions of Nonreductive Physicalism, is not a particular notion of causation but the peculiar relation of metaphysical dependence

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<sup>7</sup> For physical effects of M1, this is straightforward (see fn. 6). For another type of effect that M1 may also have, since P is supposed to cause whichever property is metaphysically sufficient for such effect, then it is assumed that P also has this effect. This is the so-called principle of Upward Causation which most physicalists accept.

between the mental cause and the physical cause. This is the relation of grounding. We turn now to examine this response.

## **2. Grounding Physicalism.**

Grounding was introduced a few decades ago in the philosophical discussion as meaning a relation of metaphysical precedence or priority. The general idea is that when P grounds M1, then P is metaphysically more fundamental than M1. Also, the relation of grounding is commonly understood as an explanatory relation. This has raised the concern that defenders of grounding are mixing up purely metaphysical issues with epistemological ones (see, for instance, Wilson 2014), as what we can explain seems to depend crucially on how we describe things and not merely on the things themselves. But I think we can suppose that by saying that grounding is explanatory what is meant is that the grounded thing occurs in virtue of the grounding thing. In fact, some defenders of the necessity to introduce this notion point out that it is just a way of spelling out the “in virtue of” idiom, which is so common when we try to describe relations of metaphysical dependence which are not causal and hold between simultaneous things (Audi 2012). This is however perhaps too vague. Consider this sentence: ‘this glass contains water in virtue of containing H<sub>2</sub>O’. One would say that the ‘in virtue of’ appearing in this sentence is not that of grounding, since actually water is H<sub>2</sub>O and one cannot say that H<sub>2</sub>O is metaphysically more fundamental than water, at least not in the sense relevant for defining Nonreductive Physicalism. This is a problem more important than it may seem, since it suggests that there must be a way to sort out relevant uses of ‘in virtue of’ from irrelevant ones and this would seem to presuppose an independent handling on the notion of grounding. The question of the vagueness or unspecificity of the notion of grounding will loom large in the discussion to follow. So, for the moment, I will leave the matter here.

The literature on grounding is now huge. There is, however, no general consensus about this notion, not even among strong defenders of the necessity to postulate it. There are important disputes, for instance, about what are the genuine relata of the relation of grounding or which are its formal properties. I cannot properly dwell into these issues here. Given the purposes of this section, I will concentrate only on how these issues are treated by those writers who have recently claimed that the nonreductivist can successfully meet the causal exclusion challenge by resorting to grounding. Hence, we will discuss here the arguments contained in Kroedel & Schulz 2016 and in Stenwall 2021.

These authors, in line with many others, think that grounding is a relation which has the formal properties of a strict partial order. This is important, if we truly want to formulate Nonreductive Physicalism in terms of grounding. According to Nonreductive Physicalism, mental properties are metaphysically dependent on, but not identical to, physical properties. So, if Nonreductive Physicalism is to be understood in terms of grounding, then grounding should be an irreflexive and asymmetric relation. As for transitivity, Nonreductive Physicalism is usually understood as entailing a layered structure for the empirical world, where some properties may depend on others, and these in turn in yet others, etc. Now, a first important problem is that it has been alleged

that there are counterexamples against the irreflexivity and transitivity of grounding, and even against the asymmetry. The authors we are discussing, however, do not think these problems insurmountable and consider the counterexamples as controversial.<sup>8</sup>

Another important issue is that the relata of grounding are generally taken to be facts, rather than property instances. Kroedel & Schulz, quite straightforwardly, decide that grounding can also be between property instances. They define accordingly Grounding Physicalism as follows:

(Grounding Physicalism) Necessarily, all instances of mental properties are grounded in instances of physical properties.

Stenwall is a bit more careful and accepts that grounding relates only facts, where facts are understood as “what true propositions state” (p. 11776). The required connection with property instances is bridged with the assumption that the instantiation of a property M1 (by something x) can be equated to the fact that x instantiates M1. So, according to Stenwall, Grounding Physicalism should be defined as follows:

(Grounding Physicalism\*) All mental facts are grounded in (non-mental) physical facts.<sup>9</sup>

Given that Kroedel and Schulz are also prepared to equate property instances with facts in the same sense as done by Stenwall, in the end the differences between both formulations of Grounding Physicalism need not concern us for the purposes of this paper. What is important is that they assume, in line with most defenders of grounding, that the relata of grounding are, properly speaking, facts understood as what is stated by true propositions and that there is an innocuous way of translating talk about property instances into talk about facts which does not threaten in any important way the project of defining Nonreductive Physicalism in terms of grounding.

This last assumption is, however, doubtful. That grounding relates facts gives rise to an annoying problem that may jeopardize the project of defending Grounding Physicalism. It is the well-known problem of what grounds grounding facts. Suppose that we claim that the fact that x has a mental property M1 is grounded in the fact the x has a physical (non-mental) property P. Now, what grounds what is also assumed to be a fact (is the fact stated by the proposition meant by the previous statement), and therefore it lies within the scope of the grounding relation. Now, either this fact is fundamental or it is itself grounded in another fact. In the first case, the fact in question is partly a mental fact (it contains the fact that x has mental property M1), and therefore Grounding Physicalism would entail that some fundamental facts are partly mental, which seems a dubious physicalist assumption. If, on the other hand, it is a grounded fact, then there is a fact F that grounds the fact that the fact that x has M1 is grounded in the fact that x has P. In this last case, a new yet more complex fact is generated and we again have the two options for this more complex fact. Either it is fundamental, or un-grounded, or else it is grounded. And, again, both seem problematic. In the first case, because the more

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<sup>8</sup> Stenwall (2021) is more specific than Kroedel & Schulz (2016) on this difficulty. See his footnote 2.

<sup>9</sup> As it is apparent, Stenwall's definition differs from that given by Kroedel & Schulz not just in the reference to facts, but also because it drops the necessity operator. This is interesting in itself, but I will not discuss it here because my criticisms do not concern this specific issue.

complex fact is still a mental fact (at least partially). In the second case, because this only make us postulate yet another more complex fact which again is partly mental... There are two problematic aspects of this problem. The first is whether we can stop this regress by reaching an absolutely fundamental and un-grounded fact. If the regress cannot be stopped then for each fact there is a grounding fact which is more fundamental and again partially mental. The second is that if there are such fundamental facts which stop the regress, then there are going to be fundamental facts which are at least partially mental. I definitely think that a physicalist would balk at accepting any of these two options.

Stenwall discusses this issue, but only briefly and in a footnote, whereas Kroedel and Scholz simply ignore it. This is rather surprising, given the importance of the matter in order to assess whether Grounding Physicalism is a viable definition of Nonreductive Physicalism. Stenwall simply asserts that there are different suggestions in the literature about how to stop the regress. But regarding the second problematic aspect of the problem, which is I think the more troublesome for the purposes of defining Nonreductive Physicalism in terms of grounding, he merely endorses that it is correct that there are fundamental facts which are not (purely) physical facts. Yet he claims that still the resulting view can be accepted by a physicalist since it entails that all mental facts are grounded in physical facts. This is rather puzzling, to say the least, since, as we have just seen, some of the ungrounded fundamental facts which are not purely physical are also partially mental. Stenwall boldly states, however, that the resulting view is still a physicalist view because “facts about what grounds mental facts are not themselves mental facts” (fn. 11, p. 11781). I can’t see how this helps with our second problem. The only charitable interpretation that I can think of is that Stenwall has in mind a distinction between atomic facts and more complex ones and that what Grounding Physicalism entails and renders it a physicalist thesis is that all atomic mental facts are grounded in physical non-mental facts. This of course leaves open that there are fundamental ungrounded but not atomic facts which are at least partly mental. There are at least two problems with this suggestion, of course: one, to make sense of this notion of atomic mental fact; another, to defend that a physicalist should be happy with the claim about there being fundamental ungrounded mental facts, albeit not atomic.

It is very important to notice that this annoying problem does not arise for formulations of Nonreductive Physicalism which do not rely on grounding but on other relations of metaphysical dependence, like those which rely on a suitably defined relation of realization. The fact that, say, an instance of mental property M1 is realized by an instance of physical property P lies outside the scope of the relation of realization of properties, and in this way the problem is averted (more on this in the conclusion).

The next step in the argumentation that a definition of Nonreductive Physicalism in terms of grounding solves the exclusion problem is also, as we shall see, problematic. The idea is that nonreductive physicalists should commit themselves to the following principle:

(Dual Causation) Whenever an instance of a mental property M1 causes an instance of a physical property Q, then the instance of the physical property P grounding the instance of M1 also causes the instance of Q.



Now we are in the well-known predicament that we mentioned in the previous section: namely, the view requires postulating massive cases of non-standard causal overdetermination between mental causes and physical (non-mental) causes. The idea will be again, of course, that the relation of grounding between the mental cause M1 and the physical cause P renders such causal overdetermination harmless and something we should be unhesitant to accept.

Now, the question is of course not so simple. One main issue is that the relation of grounding is very thin, or opaque, meaning that it tells us very little about what and, above all, how the relation of metaphysical dependence between M1 and P is (Wilson 2014 and 2016b). This makes it of course very difficult to assess whether such massive causal overdetermination is problematic or not.

All that Kroedel and Schulz claim in this respect is that the grounding relation between mental causes and physical causes dispels the worry that such massive overdetermination is due to a cosmic coincidence. However, as we argued in the previous section, saying this is just saying too little to assuage the concerns raised by the counterbalancing reasons we mentioned there. Again, this only addresses the fact that such causal overdetermination is massive rather than rare, not whether it makes sense to postulate it. Also, to add a further concern, there are unphysicalistic scenarios which also have as a consequence that there is massive psycho-physical non-coincidental causal overdetermination. Suppose, for instance, that there are fundamental causal laws linking mental causes with physical causes.

Stenwall, who is aware of this problem, offers a different reason. He says that the causal overdetermination in question is not harmful because grounded facts are nothing over and above grounding facts. The idea is then that the fact that the instance of M1 also causes an instance of Q does not involve a harmful case of overdetermination because such an instance of M1 is nothing over and above the instance of P grounding it (and also causing the instance of Q).

The problem is again that the notion of grounding is so opaque that we cannot make clear what is meant here by “being nothing over and above” nor why such thing renders the causal overdetermination perfectly acceptable. Actually, Robert Audi, himself an enthusiastic defender of grounding, completely disagrees on this issue. Audi claims that a grounded fact must be something over and above its grounding fact (Audi 2012, p. 709).

I think that Audi is right that at least on a natural understanding of being nothing over and above it cannot be that a grounded fact is nothing over and above a grounding fact. It cannot be if grounding is meant to be a relation of metaphysical priority and as such an asymmetrical relation. And it should mean something like this if one wants to define Nonreductive Physicalism in terms of grounding. Actually, these blatant discrepancies among defenders of grounding only make it the more apparent how opaque, or informationally thin, such a notion is.

Furthermore, if grounded facts were nothing over and above grounding facts one would tend to think that grounded facts are facts only in a “liberal” sense. Recall that a fact was defined as what is stated by a true proposition. But notice there are such true

propositions as that Pope Francis exists or that snow is not black. This however should not lead us to accept that existing is a property of objects such as Pope Francis or commit us to the existence of negative properties like not-being-black. So, these propositions point to facts only in a liberal sense, meaning that they do not involve commitment to onerous ontological theses about negative properties or about a supposed property of existing. Surprisingly enough, Stenwall endorses the claim that Grounding Physicalism entails that all mental facts such as the instantiation of a mental property M1 are liberal in precisely this sense (see specially fn. 22). But then, we seem entitled to deny the ontological reality of mental properties. This is certainly not what the nonreductive physicalist has in mind.

In sum, on a natural understanding of being over and above, grounded facts are something over and above grounding facts, so it cannot be that causal overdetermination is not harmful because the mental causes are nothing over and above the physical causes. We seem to be gestured here, therefore, at a mysterious notion of being nothing over and above, which is compatible with asymmetrical dependence but somehow renders psychophysical causal overdetermination not harmful. This is not, to say the least, a promising way of counterbalancing the important reasons against such causal overdetermination.

### **3. An emergentist twist.**

In a recent paper, Lei Zhong offers a very original position regarding the causal exclusion problem, one that, as far as I know, has not been considered to date (Zhong 2020). Zhong defends Grounding Physicalism, again understanding grounding as a relation between facts. Yet, his reaction in relation to the exclusion problem is to drop the principle (PCCP). Zhong, on the one hand, argues that evidence about the conservation of some basic magnitudes is not enough to support the principle. On the other hand, he argues that the principle is violated by mental causation since in some cases only the mental property M1 causes a physical effect Q, while the physical property grounding it, P, does not cause it. He repeats here some arguments already advanced by other writers. One is the idea that some causal relations are realization-insensitive. We mentioned this notion in the first section (fn. 4). Zhong alludes also to Yablo's proportionality constraint to causality and to the counterfactual or the interventionist account of causation as views which all would have the consequence that (PCCP) is false. It is interesting enough that Zhong does not discuss these reasons nor the criticisms to them raised by other authors,<sup>10</sup> nor does he note that it is doubtful that all of these reasons form a coherent lot.

In any event, Zhong concludes that principle (PCCP) is false and that this is the way to respond to the causal exclusion challenge. He dubs his position 'Emergentism' because it entails that mental properties may have causal powers not had by their physical grounders. In a surprising turn, however, he decidedly asserts that his emergentist view is still a physicalist view. This is indeed surprising, since Emergentism has traditionally

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<sup>10</sup> For a recent criticism of both the interventionist and the counterfactual account of causation as a solution to the exclusion problem, see McDonnell (2017).

been considered the main opposition to physicalism. Actually, most writers think that denying (PCCP) entails an antiphysicalist position. Zhong, however, disagrees with this. The main argument for the claim that a physicalist position requires the truth of (PCCP) is, I think, as follows. If (PCCP) were false, then there would be empirical facts, for instance, the causing of Q by mental property M1, which would be fundamental (i.e., not grounded in, nor realized by, physical causal facts, since there is no physical property P also causing Q) and not physical. But all fundamental facts should be physical, according to physicalism. Therefore, if (PCCP) is false, then physicalism is false.

What is wrong, according to Zhong, in this argument? He argues, if I understand him correctly, that it is wrong to infer that there are fundamental nonphysical facts from the claims that M1 causes Q but no physical property P causes Q. This is so, according to Zhong, because causal facts are grounded in non-causal physical facts in such a way that the causing of Q by M1 is grounded in physical facts which are not causal (which do not involve that some physical property P also causes Q). Which facts are these? Well, Zhong vaguely suggests “facts involving the transfer of energy and momentum and basic dynamic processes” (Zhong 2020, p. 43).

Again, in order to assess such an original position, we are helpless on account of the already censured extraordinary opacity of the grounding notion. We are told that mental properties occur in virtue of physical properties and that, in spite of this, they have causal powers not had by their physical grounders, but this is still a physicalist position since, as it happens, causal facts occur in virtue of more fundamental no-causal physical facts. In what all these relations of dependence consist, whether they can all be coherently held together, what kind of evidence we have for them, how can they be assessed or challenged, well, all these are issues which simply lie beyond any grounding thesis because the grounding notion itself does not give enough information.

To give a more precise idea of the difficulties here, one could perhaps use the notion of nothing-over-and-aboveness that many writers, as we have seen, seem to associate with grounding. Perhaps, what is meant by the causal facts being grounded in non-causal facts is that causal facts are nothing over and above certain non-causal facts. This can be said, for instance, if we happen to endorse a reductive analysis of causation, like perhaps the counterfactual analysis is meant to be. But then, that M1 causes Q would be reduced to a non-causal fact crucially involving M1, not to a purely physical fact. Also, we have the already noted problem that a reductive analysis does not grant the sort of asymmetric relation of dependence which seems to be one of the few ideas associated with grounding. No, what Zhong’s position requires is that all non-physical causal facts metaphysically depend on wholly physical non-causal facts in a way such that the former cannot be reduced to the latter and yet the resulting metaphysical picture is still a physicalist picture. And we are given no clue about how this can be true.

#### **4. Conclusions**

It is time to recap and reach some conclusions. Grounding has been an innovation in metaphysical studies that has been enthusiastically received by many philosophers

worried about philosophical problems of dependence. Although the already existing literature has been pointing to the many difficulties that this notion involves, this has not discouraged grounding fans in the least. In fact, as we have just seen, nowadays some authors remain convinced that an appeal to grounding is the key to solving the notoriously complex problem of causal exclusion in a physicalistically acceptable way. I hope I have made clear in this contribution that this optimism is completely unfounded. The bottom line, to make a very fast summary of the discussion in this article, is that grounding offers us too little to deal with tough metaphysical problems like causal exclusion. So, why are there still so many enthusiasts about Grounding Physicalism?

Well, something that perplexes the philosopher who has been struggling with a physicalist solution to the exclusion problem is the idea that Grounding Physicalism is an improvement over Supervenience Physicalism, the view according to which the metaphysical relation of dependence between mental properties and physical properties is some sort of supervenience relation. It is claimed, with good reason, that supervenience cannot serve to argue for physicalism because well-known antiphysicalist positions, either dualist or emergentist, are compatible with supervenience relations between the mental and the physical. After all, it is argued, a relation of supervenience merely states a relation of modal covariance between properties and, indeed, this is compatible with unphysicalistic scenarios (Horgan 1993).

This is quite correct, but it is hardly news for philosophers working for long on these issues. Most physicalists have abandoned the project of defending Supervenience Physicalism and have begun the project of defending Realization Physicalism precisely for this reason. These physicalists now invoke a notion of realization, a relation of dependence between properties which is stronger than supervenience (Melnik 2003, Shoemaker 2007, Wilson 2011, Yablo 1992, among others). Realization physicalists disagree about how to define realization, or, to put it in another way, about which realization relation is suited to defend a physicalist position and, a fortiori, to solve problems like causal exclusion. But all of them are well aware that a supervenience relation will not do. Moreover, Realization Physicalism is free from some of the problems that as we have seen are confronted by Grounding Physicalism, like the problem about the formal properties of grounding, or the problem of which facts ground grounding facts. Despite all of this, it is astonishing to see how even recent defenses of Grounding Physicalism simply ignore all the work done by realization physicalists, despite the protests of some other philosophers (Wilson 2014).

Another defense of Grounding Physicalism is that grounding is more generic than realization relations, like functional realization, or the subset relation of causal powers or the determinable-determinate relation (to name a few of those realization relations discussed in the literature). This generic aspect would be an advantage, according to defenders of grounding, since Grounding Physicalism would not be committed to any particular realization relation, nor to the claim that all physicalist relations of dependence need to instantiate one of these specific relations. But, as we have seen, this generic character, lack of specificity, thinness or opacity of the notion of grounding, as I have called it, turns out to be a problem, as I have argued, when dealing with tough metaphysical problems like causal exclusion.

The idea has sometimes been suggested that the relationship between grounding and specific realization relations is that between the determinable and its determinates.<sup>11</sup> But this idea is problematic. First, because it would then seem to entail the embarrassing claim that grounding is itself grounded by those realization relations. Second, because, as it has been pointed out by some defenders of grounding, some of these realization relations, like a mereological relation between causal powers, do not directly entail a relation of metaphysical priority.

This last point has been finally raised as the ultimate reason for preferring Grounding Physicalism over Realization Physicalism. Grounding, by definition, entails that the grounding thing is metaphysically more fundamental than the grounded thing, but no such entailment, it is argued, applies to the case of specific realization relations. Yet, this argument can also be contested. First, because it is simply not true that the entailment in question does not apply to any realization relation, since it certainly applies to some. For instance, it applies to functional realization. A functional property is defined as a property had by something when that something instantiates another property with a given causal role. So, it is built into the notion of functional realization that a functional property requires a more fundamental property for its instantiation. Second, because, as argued by other authors, Realization Physicalism may be accompanied by an independent claim securing the ontological priority of the realizing over the realized without need to revert to the notion of grounding (Wilson 2014).

In conclusion: there are not good reasons for preferring Grounding Physicalism over Realization Physicalism and there are instead good reasons for thinking that the grounding notion is too unspecific and uninformative, too opaque, to be a useful weapon when one struggles with hard problems such as causal exclusion.

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<sup>11</sup> Wilson (2014), p. 567, mentions that Kit Fine suggested this idea in personal communication.

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