Reflections on the Principle of Sufficient Reason

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Abstract

This essay is a discussion of the Principle of Sufficient Reason, in the context of fundamental principles of philosophy. The paper discusses what the Principle is, Leibniz' argument for it, a contemporary argument for it, given by Michael Della Rocca, and an argument drawn from Buddhist philosophy by Allison Aitken. It is argued that all such arguments fail. By the very statement of the Principle, if there is no justification for it, it is false. The paper therefore concludes that since there appears to be no other plausible argument for it on the horizon, the Principle, it is false. However, the paper suggests, it may be viewed as a regulative principle, in something like Kant's sense.

1 Fundamental Principles

This conference[1] concerns the fundamental principles (*Grundsätze*) of philosophy. One might well ask exactly what the term means, but as a first

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cut one can understand a *Grundsatz* as something like: a general and significant philosophical truth that cannot be justified by inferring it from something more fundamental. Two questions arise immediately: are there such things? and if there are, what are they? I shall touch on these matters by and by, but this is not the topic of this talk.

At least in logic/metaphysics, there are three principles that have traditionally been accorded this status: the principles of non-contradiction, excluded middle, and identity. These get framed in different ways, and sometimes run together. But a clear formulation in terms of modern logic is, respectively:

- $\forall p \neg (p \wedge \neg p)$

- $\forall p (p \vee \neg p)$

- $\forall p (p \leftrightarrow p)$

or in the third case, perhaps:

- $\forall x\, x = x$

Some other principles are often added to this list. At least since Leibniz, it is common to add the substitutivity of identicals and the principle of sufficient reason. One may formulate the first of these, using second-order quantification, as:

- $\forall x \forall y (x = y \rightarrow \forall Z(Zx \leftrightarrow Zy))$

Sometimes the converse of this is also added to the list. This is the principle of the identity of indiscernibles. In both cases, there is a pertinent question about the domain of the second-order quantifiers, and in particular, what conditions define legitimate properties. For example, it would often be argued that conditions deploying intentional states do not do so. Thus, Donald may know that George Elliot is George Elliot, but not know that George Elliot is Mary Ann Evans—even though George Elliot *is* Mary Ann Evans.

The principle of sufficient reason (henceforth, PSR) has no standard logical formulation, though if we write *S* for *there is a sufficient reason why*, we may write its general form, rather unilluminatingly, as:

- $\forall p(p \to Sp)$

The converse:

- $\forall p(Sp \to p)$

is, of course, not contentious. If there is a sufficient reason why something is the case, it must indeed be the case. Anyway, the rest of this talk is about this principle.

2   The PSR

The PSR is formulated in a variety of different and non-equivalent ways. But perhaps the most general form is stated by Leibniz as follows. This is from §32 of the *Monadology* of 1714:[2]

> 31. Our reasonings are based on two great principles, that of contradiction, in virtue of which we judge that which involves a contradiction to be false, and that which is opposed or contradictory to the false to be true.
>
> 32. And that of sufficient reason, by virtue of which we consider that we can find no true or existent fact [*fait*], no true assertion [*énonciation véritable*], without there being a sufficient reason why it is thus and not otherwise, although most of the time these reasons cannot be known to us.

Briefly: every fact or true statement has a sufficient reason.

Leibniz calls the kinds of entities which have sufficient reasons both facts and true statements. In contemporary philosophy, one would probably distinguish between these things, the latter belonging to language, the former belonging to reality. However, in colloquial French 'fact' (*fait*) can simply mean a true statement—as it can in English ('what she said was not the product of her imagination; it was a fact'). This is, I suspect, what Leibniz intends. But even if he does mean two different things, for what follows, nothing much will turn on the distinction between a fact and a true statement which expresses it. I shall just speak of facts. The reader is at liberty to hear this in either way.

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[2]Loemker (1969), p. 646.

Next, the principle states that all facts have sufficient reasons. A reason for a fact, F, is another fact, R which gives a reason for F. That is, it provides some kind of explanation. Moreover, the reason in question here is a *sufficient* explanation. That is, $\Box(R \rightarrow F)$.[3]

Three things to note. First, R must be different from F (or some simple logical equivalent).[4] Otherwise the PSR would be a truism, $\Box(F \rightarrow F)$, which it is clearly not supposed to be.

Secondly, R is a fact that is to *explain F* (as Leibniz says: 'why it is thus and not otherwise'). That Lotti knows F, entails F. However, that is not the sort of reason Leibniz has in mind. Leibniz is postulating an R that, in some sense, brings F about. With perhaps the exception of some curious self-referential cases, that Lotti knows F does not bring it about that F.

Third, what kind of necessity is $\Box$? There are a number of possible candidates: physical, metaphysical, logical. I suspect that for Leibniz, it could be any one of these. R is supposed to explain F; and different kinds of facts may require different kinds of explanations (physical, mathematical, metaphysical, maybe others). I think that Leibniz would be happy with whichever necessity goes with the appropriate kind of explanation.

Let me end this section by simply noting that if the PSR is true, there are, in fact, no fundamental principles. A fundamental principle is one, we said, which cannot be justified by inferring it from something more fundamental. If the PSR is true, *any F* can be justified by inferring it from the appropriate R. So it is not fundamental. In particular, then, the PSR cannot be a fundamental principle.[5]

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[3] Note that the $\Box$ is required. A conditional that is simply true does not normally provide a sufficient condition. I say truly, 'If it does not rain tomorrow, I am going to watch the cricket'; but in a possible world where you give me a million dollars provided I stay at home, I will not go, even if it does not rain.

[4] It is sometimes claimed that certain unusual facts are exceptions to this. For example, in Christian theology it is not uncommon to hear it said that the existence of God is self-explanatory. To the extent that this is not simply a claim to the effect that God's existence needs no explanation (so denying the PSR), it comes down to the claim that God exists because existence is part of God's essence. But that is exactly to give a *different* reason for God's existence. (For further discussion of the supposed self-explanatory nature of God's existence, see Morreall (1980).)

[5] Since Leibniz mentions the principle of non-contradiction, let me add a comment on that. In *Metaphysics* Γ Aristotle notoriously claims that this is a fundamental principle; but even if the PSR does fail, it is not clear that the principle cannot be derived from other things. The principle of identity (conditional form) entails that $p \rightarrow p$. Assuming that $A \rightarrow B$ entails $\neg(A \wedge \neg B)$, we have $\neg(p \wedge \neg p)$ immediately. For further discussion, see

3 Problems with the PSR

I must confess that I have never been particularly persuaded of the truth of the PSR. There appear to be many things that have no sufficient explanation for all we know[6]—which is not to say that they have no explanation at all, just not a sufficient one. I say 'I failed to arrive because my plane was cancelled'. This is a perfectly good explanation, but it is not sufficient: had I spent a lot more money, I could have caught another.

Perhaps the most obvious domain in which sufficiency appears to fail is that of quantum mechanics. The orthodox interpretation of quantum mechanics—at least until recently—is the Copenhagen interpretation; and according to this, the collapse of a wave packet (such as that involved in the decay of an atom) is a spontaneous event. Of course, there are other interpretations, such as the many-worlds interpretation. Whether these involve such non-determinism is less clear. But if the Copenhagen interpretation or something like it does, in the end, turn out to be the best interpretation, so be it.

Another example: in mathematics some proofs provide explanations; some do not. How to draw the distinction is moot, but there are clear examples of each.[7] As an example of a non-explanatory proof, take the only proof that we currently have of the Four Colour Theorem. The proof is decomposed into 1,476 cases, each of which is algorithmic and can be checked by a computer. This is clearly not an explanation of what is proved, and there is presently no other proof. For all we know, none will ever be found. We could just have a brute combinatorial fact.[8]

Of course, what is at issue here are scientific and mathematical explanations, not metaphysical explanations. But I don't see why metaphysics should be any different. What are some examples of metaphysical facts that have no explanation? I'm not sure, since we don't know the explana-

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Priest (2006), 1.3 and 1.5.

[6]See Priest (1995), 2.9, and Priest (2021). The following examples are, admittedly, fallible; but this is not news, if you are a fallibilist as I am.

[7]See Mancosu, Poggiolesi, and Pinock (2023).

[8]The PSR is often put in a weaker form, to the effect that facts of a certain *kind* have a sufficient explanation. Of course it is not contentious that some classes of facts have sufficient explanations. It is trivially true, for example, that all completely grounded facts have one. Perhaps the most interesting restricted version of the PSR is the claim that all contingent facts have sufficient explanations. The mathematical example I have just given clearly problematises even this much weaker claim.

tions of all the things that have explanations; but it would not surprise me if the fact that there was something rather than nothing turned out to be a brute fact.[9]

Indeed, one might ask whether the PSR itself has a sufficient explanation—and it is hardly self-explanatory. Of course, its self-reflexive nature delivers something that is not normally the case: if it lacks a sufficient justification, it is simply false.

4   Leibniz' Justification

An advocate of the PSR must, therefore, engage with the question of the justification of the PSR itself. What is this?

Leibniz himself essays a number of different justifications.[10] Perhaps the most cogent is the following, given in his 'Demonstration of Primary Propositions':[11]

Proposition: Nothing is without a reason, or whatever is has a sufficient reason.
Definition 1: *A sufficient reason* for something is something which, once given, that thing occurs.
Definition 2: *A requisite* is something which, when not given, the thing does not occur.
Proof:
(*P1*) If something occurs, then all its requisites are given, for if one of them were not given the thing would not occur (by *def.* 2).
(*P2*) Given all requisites, the thing occurs, for if it did not occur, there would be something lacking for its occurrence, i.e., a requisite.
(*C1*) Therefore, all the requisites constitute a sufficient reason (by *def.* 1).
(*C2*) It follows that, whatever is has a sufficient reason, Q.E.D.

Note that in this argument, Leibniz speaks of the things that have or do not have reasons as *occurring*. One would not normally speak of *facts*

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[9]Metaphysical essentialists, I think, have a particularly hard time delivering appropriate explanations. How does one explain, for example, that existence is (part of) God's essence (if it is)? This has nothing to do with the meaning of the word 'God'. It is a fact about God themself, not about language.

[10]See Melamed and Lin (2023), 3.2.

[11]See Harrop (2020), p. 145, citing Dascal (1987), p. 151.

as occurring. More normally, one would speak of *events* in this way. But I do not think that too much significance should be attached to this. Leibniz is not so much a systematic philosopher as an essayist, using whatever terminology struck him as most appropriate for a particular occasion. In any case, the argument would seem just as good or bad if one rephrases *occur* and its cognates with *obtain* and its cognates.

In fact, it is bad. An initial comment. Any fact, F, is a necessary condition for itself, since $\Box(F \rightarrow F)$. Trivially, then the sum total of the necessary conditions for F is a sufficient condition for F. Clearly, this is not what is required. For Leibniz' argument to have any force, the necessary conditions ('requisites') must be restricted to a certain kind. Loosely speaking, they are those conditions that are operative in bringing F about. How, exactly, to characterise this class is not obvious, but let us grant that it can be done. The problem with the argument is that it just *assumes* that the totality of all necessary conditions, in this sense, is a sufficient condition—and so that there *is* a sufficient condition.[12] It begs the question.

To see this, consider the reason given in (P2) (that is, what occurs after 'for'): if it [a certain event, x] did not occur, there would be something lacking for its occurrence, i.e., a requisite. Contraposing, we get (for any x):

- if no requisite for the occurrence of x is lacking, then x occurs.

Or in plain English: if every necessary condition of x obtains, x obtains. Unless the sum total of necessary conditions is also sufficient, this is just false. Suppose that you are in a game show, and the main prize depends on your rolling a 6 on a certain fair die (or obtained by some other random-number-generator device). You go to the show, qualify for rolling the die, go to the table where the die is, and roll it. All the necessary conditions for obtaining a 6 are met, but you throw a 1.

You may reply that this assumes that the the roll of the die is a truly random event, which is not so if determinism is true. But determinism is a version of the PSR for physical necessity; and this is what was supposed to be proved. So that reply begs the question too.

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[12]As Leibniz himself notes elsewhere: 'the nature of things requires that every event should have beforehand its proper conditions, requisites, and dispositions, the existence whereof makes the sufficient reason of such an event'. Loemker (1969), p. 698.

5 Della Rocca's Repair

The criticism I have just rehearsed is hardly new.[13] In fact, I think it fair to say that although the PSR was a widely accepted feature of Rationalism in general, and German Idealism in particular,[14] it has been somewhat out of fashion—at least since the rise of quantum mechanics. However, it does seem to be experiencing something of revival of late. One of the most significant new advocates of the principle is Michael Della Rocca—for example, in his book *The Parmenidean Ascent*.[15] There, Della Rocca does not argue for the PSR, merely contenting himself with pointing out that often those who deny it assume it surreptitiously.

5.1 The Basic Strategy

He does, however, defend it in a later paper[16] where he gives what I think is the most important argument for the PSR in contemporary Western philosophy. In fact, he offers what is essentially a repair of the Leibnizian justification. The aim is to augment it in such a way that it does not beg the question. His repair concerns the following condition (p. 222):

R1: x does not brutely fail to exist

That is, as he immediately paraphrases it:

- it is not the case that x's failure to exist is a brute fact.

It might be thought that we are dealing here merely with the existence of things, such as Melbourne or the least prime number—and so very specific kinds of facts. No doubt the PSR does deal with such things. However, the context makes it clear that we are dealing with states of affairs in general; and to say that they exist is just a way of saying that they obtain. So we may take the variables to range over states of affairs, and use *exist* and *obtain* interchangeably. If we write 'x exists/obtains' as ξ then $R1$ is simply:

- $\neg$(it is a brute fact that $\neg\xi$)

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[13]References to a number of people who have expressed it can be found in fn. 6 of Della Rocca (2023).

[14]See Melamed and Lin (2023).

[15]Della Rocca (2020). For my thoughts on the book, see Priest (2021).

[16]Della Rocca (2023), to which page references in what follows refer.

Della Rocca's claim is that $R1$ is a necessary condition for ξ (in the relevant sense); and when conjoined to the other necessary conditions, we have a sufficient explanation of ξ.

Now, to say that *it is a brute fact that A* is to say that: A and there is no sufficient explanation of A. That is:

- $A \wedge \neg SA$

So $R1$ is:

- $\neg(\neg\xi \wedge \neg S\neg\xi)$

That is:[17]

- $\xi \vee S\neg\xi$

This is clearly a necessary condition of ξ—at least in the straightforward sense—since $\Box(\xi \rightarrow (\xi \vee S\neg\xi))$.

However, we require that when $\xi \vee S\neg\xi$ is added to the other necessary conditions for ξ, we have a sufficient explanation for it. That is, where N_ξ is the conjunction of the other necessary conditions (in the relevant sense), we require that:

Suff $\Box((N_\xi \wedge (\xi \vee S\neg\xi)) \rightarrow \xi)$

And, moreover, that if ξ is true then $N_\xi \wedge (\xi \vee S\neg\xi)$ explains it. Neither of these things is obvious. Let us consider these matters.

5.2   Is Suff True?

First, is **Suff** true—or at least, can one assume so without begging the question? The formula in the scope of the $\Box$ is:

Suff⁻: $(N_\xi \wedge (\xi \vee S\neg\xi)) \rightarrow \xi$

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[17]Note that I am assuming the principle of double negation here. Della Rocca does not say what logic he is reasoning with, but I think it fair to assume that he would take that to be "classical logic". What happens to matters using a variety of other logics would require a much more extended analysis.

There is no obvious reason why this should be true. Suppose that ξ is false. The antecedent of the conditional may well be true. All the necessary conditions for ξ might hold, bar one, R, which is a uniquely sufficient condition for $\neg\xi$. Thus, for example, return to the game show example of §2, and recall that ξ is 'you throw a 6'. Let matters be exactly the same except that God, for whatever reason—God is, after all, inscrutable—has determined to make the die land 1. So $S\neg\xi$. All the other necessary conditions are still in place, so N_ξ holds. Of course, one necessary condition does not obtain, namely $\neg S\neg\xi$. However, $\xi \vee S\neg\xi$ holds, but ξ does not. So the conditional is false.

Perhaps one might object. Since $\neg S\neg\xi$ is a necessary condition for ξ, if $S\neg\xi$ holds, not all the other necessary conditions for ξ hold. But if ξ is not true, $S\neg\xi$ is just equivalent to $\xi \vee S\neg\xi$, and so this is not an*other* condition. Or to put it another way, if one includes $\neg S\neg\xi$ in the necessary conditions which hold, there is no reason to suppose that $\xi \vee S\neg\xi$ is true other than that ξ is true. So assuming that $\xi \vee S\neg\xi$—that is, $\neg S\neg\xi \rightarrow \xi$—is simply assuming that ξ follows from one of (and so the sum of) the necessary conditions, and so begs the question.

Perhaps one might contest the example for some other reason reason, but at the very least it shows that we need a (non-question-begging) argument for the truth of **Suff**$^-$. Della Rocca, in fact, provides an argument. Let us examine it. It has two parts. The first goes as follows (p. 224):

> Let us take all the other (perhaps infinitely many other) requisites for x's existence. If all these other requisites are given and x still does not exist, then x's non-existence would be a brute fact.

That is:

- $(N_\xi \wedge \neg\xi) \rightarrow (\neg\xi \wedge \neg S\neg\xi)$

The second part of Della Rocca's argument goes as follows (p. 225) (I enumerate the steps to aid comment):

> Now let us add R1 to the other requisites and see what happens. As we have just seen, (i) given all the other requisites, the only way in which x could fail to exist would be if x were to brutely not exist. But (ii) given R1, x does not brutely fail to exist. So, (iii) given R1 and all the other requisites, it must be the case that x exists.

The argument is:

(i) $(N_\xi \wedge \neg\xi) \rightarrow (\neg\xi \wedge \neg S\neg\xi)$
(ii) $R1 \rightarrow \neg(\neg\xi \wedge \neg S\neg\xi)$
So (iii) $(N_\xi \wedge R1) \rightarrow \xi$

The argument is clearly valid. ((i) and (ii) entail $(N_\xi \wedge \neg\xi) \rightarrow \neg R1$, from which (iii) follows.) The conclusion, (iii) is **Suff$^-$**. Premise (ii) is a logical truth, but what are we to make of premise (i)? (iii), is:

- $(N_\xi \wedge (\xi \vee S\neg\xi)) \rightarrow \xi$

This is logically equivalent to:

- $((N_\xi \wedge \xi) \vee (N_\xi \wedge S\neg\xi)) \rightarrow \xi$

which is equivalent to:

- $((N_\xi \wedge \xi) \rightarrow \xi) \wedge ((N_\xi \wedge S\neg\xi) \rightarrow \xi)$

The first conjunct a logical truth, so this is equivalent to the second:

- $(N_\xi \wedge S\neg\xi) \rightarrow \xi$

which is logically equivalent to:

- $(N_\xi \wedge \neg\xi) \rightarrow \neg S\neg\xi$

which is logically equivalent to:

- $(N_\xi \wedge \neg\xi) \rightarrow (\neg\xi \wedge \neg S\neg\xi)$

which is just (i). So this premise of Della Rocca's argument and the conclusion are simple logical equivalents of each other. Indeed, (iii) is just the (antilogised) contraposition of (i).

As noted, Della Rocca is concerned to avoid the charge of begging the question. To this end, he says that (p. 225) 'to assume that x does not brutely fail to exist $[\xi \vee S\neg\xi]$ is certainly not to say or presuppose that x's existence has a sufficient reason $[S\xi]$'. This is correct. But given that (i) and (iii) are rather trivial logical equivalents of each other, we have a case of begging the question.

Begging the questions is a rather tricky subject; and it is certainly not true that if A and B are logically equivalent, appealing to A cannot provide

a suasive argument for *B*. *A* might be very simple and obvious, whilst *B* is enormously complex and far from obvious. But no one who has a modicum of logical acuity should be persuaded of the truth if $A \rightarrow B$ by an appeal to $\neg B \rightarrow \neg A$.

We have not, then, avoided Leibniz' problem.

5.3   Is Suff Explanatory?

Even if **Suff** can be assumed to be true without begging the question, there is still the other matter to be addressed. If ξ is true, does $N_\xi \wedge (\xi \vee S\neg\xi)$ explain it? (As we noted, a sufficient condition does not have to be an explanatory one.) The conjunction is equivalent to:

- $(N_\xi \wedge \xi) \vee (N_\xi \wedge S\neg\xi)$

Now, the first disjunct, $N_\xi \wedge \xi$, clearly does not provide an explanation of ξ, since it presupposes it. *A fortiori*, it does not provide a sufficient explanation. Neither does the second disjunct, since it entails $\neg\xi$. I see no reason to suppose that the disjunction does any better than each disjunct separately. Indeed, to say that $A \vee B$ *explains C* would normally mean that *one of A and B explains C* (*A* or *B* explains *C*; I'm not sure which), or that *both do* (*A* or *B* explains *C*; take your pick). Indeed, the disjunction is logically weaker than each disjunct. And if *A* fails to explain *B*, how could something weaker than *A* do so?

Della Rocca does, in fact, give an argument to the effect that $N_\xi \wedge (\xi \vee S\neg\xi)$ explains ξ. Let us consider this. The argument has to be disentangled from the reply to an objection. The objector says that something negative (*R*1) cannot be part of an explanation, as Della Rocca requires. Thus, analogously, if I am alive today, it is because my body is functioning in such and such a way. It is no part of an explanation that I was not murdered yesterday. Della Rocca accepts the analogy, but turns it back on the objector. So we get (p. 222 f):

> it is a requisite of my existing today that I was not murdered last night... My not being murdered last night is certainly a necessary condition of my existing today (and thus it is a requisite in the sense of 'requisite' according to which a requisite is a necessary condition). Further, my not being murdered last night is metaphysically prior to my existing today (and so it is

a requisite in the stronger sense). It is in part because I was not murdered last night that I exist today. It is also in part because I was not killed in a car accident last night that I exist today. And so on for the many other sad ways for me to have met my fate last night.

And then (p. 223):

> Similarly, I would say, *x*'s not brutely failing to exist is a part of the explanation of *x*'s existence. Again, you might want to say that *x*'s existence is explained only by a positive fact that something like a creative or productive act took place (and not by a negative fact). But I would say that this productive act is itself explained, in part, by the fact that nothing—in particular, no brute fact—prevented this productive act from taking place. Of course, much more would need to be invoked to explain *x*'s existence than merely the fact that *x* does not brutely not exist, but this fact is a part—perhaps, a small part—of the explanation of *x*'s existence, if indeed *x*'s existence has an explanation. Just as the fact that I was not the victim of a car accident last night partially explains my existence today, so too the fact that *x* is not the victim of an ontological accident, consisting of *x*'s non-existence, partially explains *x*'s existence.

Let us start by considering the analogy. The question 'Why do I exist today?' could, in fact, mean many different things, depending on the context: 'Why do I exist today, rather than in the year 1300?', 'Why do I exist today, when I was given three months to live over a year ago?', 'Why do I exist today when all the others in the car crash were killed?', 'Why do I exist today when very few people live to my age?' Perhaps the fact that I was not murdered last night could be relevant to answering some questions of this kind. Clearly, for many of them it is not.

Frankly, I don't think this is analogous to the case that Della Rocca is concerned with, since time is playing an essential role in it. (The word 'today' is doing important work.) It does not do so if one simply asks 'Why does *F* exist?'. But if it *is* analogous, it is necessary to determine which possible question this asks, and then establish that $R1$ is relevant to providing an answer to *that* question. At the very least, then, a lot

more work is required if analogy is to play any role here. Absent that, the argument, has to stand on its own two feet. Let us consider whether it does so.

It is agreed that failure to exist brutely will not, on its own, explain the fact in question, *F*. Something else is involved in producing it, some "productive act". But then we get:

> this productive act is itself explained, in part, by the fact that nothing—in particular, no brute fact—prevented this productive act from taking place.

Now, first of all, it is clear that the spoiler—that which prevents the 'productive act' from operating—being a brute fact is playing no role here, as the sentence itself says. What is relevant is that nothing prevents whatever it is that is producing *F* being operative. Given that it *is* operative, it is this which explains that *F* obtains; and it is this which provides a sufficient reason for *F*. (As Leibniz says in his Definition 1: *A sufficient reason for something is something which, once given, that thing occurs.*) That a spoiler failed to occur is not germane.

Of course, one might raise the question of why the 'productive act' was operative. But explaining that is explaining a different matter, as the above quotation indicates, when it says 'the productive act is itself explained'. Nor does this explanation need to be given before the explanation in terms of the 'productive act' obtaining is a good one. For *A* to be an explanation of *B*, an explanation of *A* is not itself required. That a window broke is perfectly adequately explained by the fact that I threw a stone at it (and the window was fragile, etc). One does not have to explain why I threw the stone—or the fact that I existed in the first place to do so.[18]

6   A Buddhist Justification?

What we have just seen is that Della Rocca's amendment of Leibniz' argument fares no better than Leibniz' version itself. Let us change tack.

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[18]Call an explanation *complete* if one cannot continue to ask *why*? Clearly, explaining why the window broke by citing the fact that I threw a stone at it is not a complete explanation. However a sufficient explanation in Leibniz' sense, and a complete explanation in this sense, are quite different creatures.

A quite different justification for the PSR might be thought to come from an unexpected direction: Buddhist philosophy. There are many different schools of Buddhist metaphysics, but one of the most important is the earliest school of Mahāyāna Buddhism, Madhyamaka. This was founded by Nāgārjuna (fl. 1st or 2nd c. CE), and exercised an enormous influence on all subsequent Mahāyāna schools.[19] And indeed, Allison Aitken, a notable Buddhist scholar, says of this school of Buddhism in her paper 'Nāgārjuna and Vasubandhu on the Principle of Sufficient Reason':[20]

> Nāgārjuna's anti-foundationalist Madhyamaka metaphysics is driven by an unrestricted and exceptionless commitment to causal and metaphysical grounding versions of the PSR.

Why might one think this?[21]

6.1   Emptiness

The central metaphysical thesis of Madhyamaka (*contra* the earlier Abhidharma position) is that everything is empty (*śūnya*); and what this means is that nothing has self-nature/being (*svabhāva*). That is, everything is what it is in dependence on other things, notably, at least some of: its parts, efficient causes (and maybe effects), and our concepts.

This is not the place to review the bank of arguments marshalled for this conclusion. A simple example will suffice for our purposes. What makes it the case that I am the person I am? This fact is explained by several things. First, that I have certain parts. If I had the parts of a goldfish, I would not be a person at all, let alone the person I am. Secondly, the the fact that there were certain causal influences on me: how my parents treated me, what happened to me at school, and so on. Had I been born

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[19] On Nāgārjuna, see Westerhoff (2022). On Madhyamaka, see Hayes (2023).

[20] Aitken (2024), p. 1. Page references in what follows are to this. Another notable scholar, Ricki Bliss (202+), argues more cautiously that Nāgārjuna's position is consistent with the PSR.

[21] Vasubandhu (fl. 4th or 5th c.) is later than Nāgārjuna, but the text relevant to the present matter (his *Abhidharmakośabhāṣya*) is an exegesis of the earlier Abhidharma school of Buddhism, central aspects of which Nāgārjuna rejected. (Vasubandhu himself later rejected the views of this school, and wrote centrally important texts of the Mahāyāna Yogācāra school. (On Vasubandhu, see Gold (2021).) Vasubandhu defends only a restricted version of the PSR (according to Aitken, p. 10), so I do not discuss his view here.

in the favelas of Rio di Janiero and had no education, I would have been a quite different person. Perhaps more contentiously, the fact that I am embedded in various social structures: I am Australian, a husband, an academic philosopher. All of these depend not only on my being part of certain causal chains, but also on my being thought of in certain ways by those around me, and so dependent on concepts. Similar considerations arguably apply to all things.

Let us assume, at least for the sake of argument, that the Madhyamaka arguments for emptiness are correct.[22] To take these to deliver a case for the PSR would be incorrect. Let us grant that the facts determining the being/nature (*bhāva*—if you want to put it in Aristotelian terms, essence) of something provide a sufficient explanation thereof. There are lots of facts about something—e.g. me—that are not of this kind: that I awoke at 06.00 this morning, that I saw a red car as I left the house; and so on.

6.2 All Facts

One might argue, as does Aitken, that Madhyamaka is committed to sufficient reasons for *all* states of affairs in the causal flux—which, for Nāgārjuna, are the only ones there are.[23] She labels this the PSR^*_M, and formulates it as follows (p. 21):[24]

- If x exists and x is P, then (i) the fact that x exists and (ii) the fact that x is P, are due to, or explained by the existence and properties of some non-x things (y, z, etc.).

And one certainly does find things that can be read this way in Nāgārjuna, who says: 'no object whatsoever is without a cause'.[25] Pretty clearly,

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[22]In fact, I take them to be so. See Priest (2014), chs. 10, 11.

[23]Of course, if one holds there to be abstract objects—as Nāgārjuna does not—one will reject this. Perhaps more interestingly, some Buddhists do hold that some things are not in the flux. *Nirvāṇa* is such a thing. It is unconditioned (*asaṃskṛta*). Arguably, at least, Nāgārjua rejects this claim too. He says explicitly and somewhat paradoxically, that *nirvāṇa* and *saṃsāra* (the mundane realm) are the same thing. (*Mūlamadhyamakakārikā*, XXV: 19.)

[24]As Aitken emphasises, and for reasons I have already discussed, the explananda here may be causal, material (mereological) or formal (conceptual)—three of Aristotle's four causes. It is the sum total (*sāmagrī*) of these which produces the explanans. I have changed Aitken's F to P, since I am already using F for facts.

[25]*Mūlamadhyamakakārikā*, IV: 2. Translation from Siderits and Katsura (2013), p. 53.

Nāgārjuna is concerned with objects such as pots and trees; but perhaps we can extend this, as Aitken does, to facts in general (existential or otherwise).

Nāgārjuna does not appear to give an argument for the claim he makes.[26] Neither is this obvious. Even something which happened and which was a major influence on making me who I am may have been a chance event. Maybe it was the result of a choice I made to go somewhere, simply to avoid the predicament of Buridan's ass.[27]

Some later Madhyamaka philosophers certainly did give such arguments, however. Buddhapālita (fl. 5–6 c.) gives the following *reductio* argument:[28]

> Nothing arises without a cause/reason, since otherwise it would absurdly follow that everything could/would originate anytime from anything, and all effort would be pointless.

Unfortunately, the argument is based on a complete non-sequitur. If it is the case that some things happen without a cause/reason, it does not follow that anything can happen at any time. *Some* things may require a cause, and only *some* things may be able to happen without them.

Bhāviveka (fl. 6 c.) also defends the principle. Alluding to Nāgārjuna's view, he says:[29]

> Why? The idea is that [this is so] [1] because there is no inference showing that [uncaused origination], and [2] also because there would be the fault of conflict with [both] inference and common knowledge.
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> As to that, the conflict with inference [is as follows:]

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[26]Undoubtedly, causation plays a very significant role in early Buddhist thought, where it is termed *pratītyasamutpāda*. For example, as is often noted, in one sūtra, the *Saṃyuttanikāya*, the Buddha says 'if this exists, that exists; if this ceases to exist, that also ceases to exist'. I suppose one could interpret this as a statement of causal determinism, and not just the plain common-sense principle it appears to be. At any rate, it would have been natural for Nāgārjuna simply to take over whatever is assumed about *pratītyasamutpāda* from the earlier period.

[27]For a discussion of Buddhism and free will, see Repetti (2017).

[28]Quoted by Aitken, p. 19. On Buddhapālita, see Hayes (2023), §3.

[29]Ames (2019), p. 34. Interpolations are the translator's. The footnotes are mine. On Bhāviveka see Hayes (2023, §4.

[Thesis:] The entities that are the inner *āyatanas*,[30] which are accepted according to superficial reality (*saṃvṛtyā*),[31] do not originate from no cause, [Reason:] because they possess generality and particularity,

[Example:] like a sprout.

The conflict with common knowledge [is as follows]: It is common knowledge that whatever exists in this world originates from causes, just as cloth [originates] from threads and a grass hut originates from grasses.

Concerning [1]: even if this is true, absent an appeal to the PSR—which would beg the question in the present context—this does not show that the view is false. Concerning [2]: The reason given applies only to certain kinds of facts—the existence of sensations (though perhaps he takes these to be representative of all things); even if this is the case, I find it very hard to extract any kind of reason from the claim that they 'have generality and particularity' (whatever that means). And as for an appeal to common knowledge, as hardly needs to be pointed out, what most people take to hold is very often false.[32]

So we still lack a cogent Madhyamaka argument for the claim that every fact has an explanation. But even if it could be established on some ground that everything has such a thing, this still does not deliver the PSR, for the simple reason that the explanation does not have to be a sufficient one. (In other words, the mere fact that everything has a cause does not imply determinism.) As already observed, the breaking of a window can be explained by my throwing a stone at it, even though the throwing of a stone is not, in itself, sufficient. (I might not have thrown hard enough.)

Even the decay of a radio-active atom may have an insufficient explanation. I may explain the fact that an atom of carbon-19 (^{19}C) decayed during

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[30]Sense impressions.

[31]Conventional reality, our lived experience.

[32]Another argument which might be made is this. Take some fact, *F*. For this to obtain, it must be the very fact it is. That is, it must have the nature it does. And for Madhyamaka reasons, that nature depends on other facts. So the fact itself depends on other facts which explain it. Now, we might argue about what, exactly, the nature of a fact is. But whatever it is, the nature of a fact does not explain it. A fact is just an existent state of affairs; and the state of affairs has the nature it does whether or not it exists. So its nature does not explain why it obtains—unless existence is part of its nature, as some Christians hold to be true of God. No Buddhist is going to agree with that.

a particular second by noting that it has a half life of 46.2×10⁻³ seconds (about 40 thousands of a second). Its decay was therefore overwhelmingly probable. In fact, probabilistic and statistical explanations play a significant role in the (particularly social) sciences.

So Madhyamaka philosophy does not deliver a justification for the PSR either.[33]

7   The PSR as a Regulative Principle

Of course, there might be other reasons for the PSR which show it to be true; but absent these it would appear to be false. That does not mean that we should not look for sufficient reasons for things. Maybe we will find them. If we do, this will be a good thing. The better we are able to explain something, the better we understand it, and the better we are able to operate on this understanding. There is just no guarantee that we will find one. If we do find it, then of course it exists. If we do not, maybe there is none; maybe we just haven't found it yet.

In other words, even if the PSR is not true, it may still serve something like what Kant calls a *regulative function*—that is, something sensible to act on as if one did take it to be true.[34] For Kant, all phenomena have conditions (whatever he meant by that). Though there is no totality of all the conditions of something or other, the thought that there is such a thing drives us on to look for more and more conditions.[35] Similarly, the PSR, though it may be false, can motivate us to push on in an endeavour to find more and deeper explanations—the finding which has significant epistemic value.

It might be suggested that we can sometimes be certain that there is no sufficient explanation of some fact, and in such cases we should give up

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[33]Aitken suggested to me in conversation that Abhidharma philosophers such as Vasubandhu (at this stage of his career) just assumed as obvious—like Leibniz—that the totality of necessary causes was a sufficient cause; and that Nāgārjuna simply took over their view of this matter. Even though Nāgārjuna explicitly rejected central parts of the Abhidharma views, I find this suggestion plausible. I leave scholars to debate such exegetical matters. What interests me here is whether we have reason to believe the assumption (if made) is true.

[34]I note that some ideas which are at least in the same ball park as this are to be found in Amijee (2021).

[35]For a discussion, see Priest (1995).

looking for one. But given a general fallibilism, we could always be wrong about the matter; and even if we currently hold that there is no sufficient explanation, we should not ignore the possibility that we are wrong about this. Thus, for example, suppose that it is the case that current quantum mechanics assures us that the quantum decay of an atom is irredeemably spontaneous. Given the history of science, it is well within the bounds of possibility that in the future the present quantum theory will be replaced by a theory which tells a quite different story.

What if the fact in question is a mathematical one, and we have a *proof* that there is no sufficient explanation (though what that might be like is not at all clear)? Even here, we should look for one, for the proof itself may be wrong. Indeed, mathematics has a significant history of incidents where things taken to be proven were shown to have counter-examples—and not just due to a simple error in the proof.[36]

A very special case concerns what we might call the paradox of sufficient reason.[37] Consider the sentence, 'there is no sufficient reason why this is true'; that is, a sentence, p_0, of the form $\neg Sp_0$. Suppose that Sp_0. Then p_0, so $\neg Sp_0$. So by *reductio* or excluded middle, $\neg Sp_0$. So p_0 has no sufficient reason. As the history of discussions of the paradoxes of self-reference reminds us, there are many reasons why one might reject the validity of this argument. But there is a further twist here. Suppose the proof is good. We have just *proved* that p_0 is true. One might say that the proof is not an explanatory one. So we have not shown that Sp_0. But given the possibility of a dialetheic response to the paradoxes of self-reference, one might also accept that the argument does provide a sufficient explanation of p_0: we have both of $\neg Sp_0$ and Sp_0. So p_0 *does* have a sufficient explanation, even though it does not. Clearly, we are in the domain of the other of Leibniz' *Gundsätze* here, the principle of non-contradiction; and this is not the place to go into that matter.[38]

Let me end by returning to where I started. If one adopts the thought that the PSR has a regulative function of this kind, what does this tell us about *Grundsätze*?

Suppose that we have a candidate, C, for such a *Satz*. We should look for a sufficient reason for it. And—assuming that the appearance of the

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[36]For a seminal case study, see Lakatos (1976).

[37]This is closely related to what is sometimes called the knower or provability paradox (sometimes, Gödel's paradox). See, e.g., Priest (1995), 10.2.

[38]One place where I do so is Priest (2006).

truth of *C* does not evaporate in the process—we may find one (or at least a proof that there is one). This would show that *C* is not a *Grundsatz*. If it really is a *Grundsatz*, we will never, of course, find one. However, this may be because there is no such thing, or it may be because we have just not found it yet.

To give an analogy: Suppose that *X* is a set which is recursively enumerable, but not recursive. We generate the members of *X*. If *x* is in *X*, it will eventually turn up, so we will know that it is. If it *x* is not in *X*, then it will never do so, but however far we go, we will never know that it is not: we may just not have gone far enough yet.

In a word: there may be *Grundsätze*, though we may never determine of something that it is one.

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