Du Châtelet's Causal Idealism

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Abstract:

I show that unlike her rationalist predecessor Leibniz, Du Châtelet is committed to *epistemic causal idealism* about natural causes. According to this view, it is constitutive of natural causes that they are in principle knowable by us (i.e., finite intelligent beings). Du Châtelet's causal idealism stems at least in part from the distinctive theoretical role played by the Principle of Sufficient Reason in her system (as presented in her *Institutions de physique*), as well as her argument for the Principle of Sufficient Reason. I show that far from merely explicating Leibniz's metaphysics, Du Châtelet develops a radical and novel rationalism that is in keeping with her core commitment to science.

Emilie Du Châtelet's *magnum opus*, her Foundations of Physics (*Institutions de physique*), was published ostensibly as a textbook for her son. Yet, and remarkably given its ostensible goal, the *Institutions* (on the received reading of the text) seeks to provide a metaphysical grounding for Newtonian physics.[1] According to orthodoxy, the metaphysical system that Du Châtelet expounds in the *Institutions* is Leibnizian.[2] This orthodoxy has been strengthened by Du Châtelet's own words, for in the preface to the *Institutions*, she writes that her goal in her first few chapters—the chapters on metaphysics—is to provide an exegesis of Leibniz's metaphysics.[3] However, some recent commentators have sought to put distance between Du Châtelet's and Leibniz's metaphysical systems. For example, Lascano (2011) argues that Du Châtelet's metaphysics is not purely Leibnizian, but also has Lockean elements, and Stan (2018) argues that Du Châtelet's metaphysics comes from Wolff, rather than from Leibniz.

I will argue that Du Châtelet breaks even more radically from her rationalist predecessor Leibniz. I will show that she is committed to a version of *causal idealism* about natural causes, where a 'natural' cause is just one that is not divine. As I am using it, the label 'causal idealism' captures the broad class of views on which there is a constitutive connection between causal relations in the world and our (finite, human) minds. Yet, we can distinguish several more precise

[1] See Brading (2019) for an alternative reading of the *Institutions* that rejects some of the presuppositions of the standard reading. In particular, Brading argues that Du Châtelet's primary goal in the *Institutions* is not that of providing a metaphysical foundation for physics. Instead, "[t]he basic foundational problem addressed by Du Châtelet is the lack of an epistemically secure basis for physics, and her response is to propose a new method for arriving at scientific knowledge." (Brading 2019, p. 12).

[2] Cf. Lascano (2011) and Stan (2018). Lascano (p. 742), for instance, writes that "[m]any commentators have written about the *Institutions*, but the metaphysical sections are almost always described as a mere retelling – and somewhat inaccurate one at that – of Leibniz."

[3] See IP, Preface (XII), p. 123. Du Châtelet writes: "In the first chapters I explain to you the principal opinions of M. Leibniz on metaphysics". I cite the 1740 edition of the *Institutions* (abbreviated 'IP'*)* by section, and I use translations from chapters of the *Institutions* translated by Brading et al (https://www.kbrading.org/translations) and from Bour and Zinsser (2009).

versions of the view. For our purposes, let us distinguish between *metaphysical* causal idealism and *epistemic* causal idealism. According to the first, causation is a mere projection of human minds. On this view, it still may be a consequence of what a cause is constitutively—namely, a projection of the human mind—that it is knowable by us, where knowability by us is not itself constitutive of what a cause is. On at least some interpretations of Hume, Hume qualifies as a causal idealist of this variety.[4] By contrast, let us say that epistemic causal idealism is the view on which it is constitutive of what a cause is that it is knowable by finite human minds. I will show that Du Châtelet is an epistemic causal idealist about natural causes. Metaphysical and epistemic causal idealism are distinct from, though related to, Berkeleyan idealism and Kantian idealism about existence, respectively. According to Berkeleyan idealism, objects depend for their existence on mental acts of perception. By contrast, according to Kantian idealism, the objects of experience (i.e., Kantian appearances) do not depend on the mind for their existence, but these objects are nevertheless not "experience transcendent": if an object exists, then it is possible for us to experience it.[5] Likewise, my claim is that for Du Châtelet, if a cause exists in the created world, then it is possible for us to know it—natural causes are possible objects of knowledge. I claim that Du Châtelet thus rejects what we might call "knowledge transcendence" for natural causes.

A commitment to epistemic causal idealism may strike one as unsurprising for someone in the early modern era. This is because a common thread running through the work of several early modern German rationalists—including Leibniz—is a broad commitment to intelligibility. Both Leibniz and Du Châtelet endorse the Principle of Sufficient Reason (hereafter 'PSR'), according to which everything has an explanation for why it exists or obtains. While the PSR is a metaphysical principle employed by these rationalists to derive other metaphysical conclusions ranging from the existence of God to the principles of continuity and equipollence, as well as scientific conclusions, it is also constrained by what is intelligible. As we will see, for both thinkers—Leibniz and Du Châtelet—sufficient reasons must be intelligible, and an intelligibility constraint on what qualifies as a sufficient reason may support an intelligibility constraint on what qualifies as a natural cause.

However, a broad commitment to the intelligibility of natural causes falls short of a commitment to epistemic causal idealism. First, as I construe it, epistemic causal idealism requires that what qualifies as a natural cause is constrained by what our *finite* minds can know. Second, a broad intelligibility constraint is compatible with a *mere* modal connection between causes and intelligibility, i.e., that necessarily, if something is a natural cause, then it is intelligible. But a mere modal connection between natural causes and intelligibility does not suffice for epistemic causal idealism. Epistemic causal idealism is the stronger claim that there is a *constitutive* connection between causal relations in the world and our minds. Suppose that God, as benevolent creator, has directly made it the case that any natural cause can be known by us. Such a view does not qualify as idealist, for it does not hold that it is *constitutive* of natural causes that they be knowable by us: it is God who directly guarantees that any natural cause is knowable by us. The modal connection between natural causes and their knowability by us finite beings is explained directly by God rather than through any constitutive feature of a natural cause.

What makes Du Châtelet an epistemic causal idealist about natural causes? I argue that Du Châtelet's commitment to this position stems from three distinct views. First—like her predecessor

[4] Beebee (2007) argues that we should read Hume as an idealist in this sense. See Bernstein (2018) for a contemporary discussion of this type of causal idealism.

[5] Cf. Allais (2003). It is worth noting that there are also interpretations of Kant's transcendental idealism on which the objects of our experience are representations, and so depend on our minds for their existence (Cf. van Cleve (1999)).

Leibniz—Du Châtelet holds that sufficient reasons are reasons that are intelligible. But instead of endorsing a general intelligibility constraint, she goes further: for her the class of relevant agents for whom any natural (i.e., non-divine) sufficient reason must be intelligible includes us, finite human beings. Second, Du Châtelet holds that causes are good insofar as they 'satisfy' the principle of sufficient reason, and so any intelligibility constraint on natural sufficient reason applies equally for her to natural causes. Third, Du Châtelet's particular epistemic constraint on sufficient reason, and thus on cause, stems from the theoretical role the PSR plays in her system, as well as the argument that she puts forward for the PSR. This feature, along with the absence of any other explanation for the modal connection between natural causes and their intelligibility for us, makes the intelligibility constraint *constitutive* of what a natural cause is for Du Châtelet.

I proceed as follows. In §1, I discuss the epistemic constraint on sufficient reasons and causes, as it arises for Leibniz. In §2, I discuss how Du Châtelet departs from Leibniz with respect to the scope of her epistemic constraint on sufficient reasons and causes, and make an initial case for her commitment to epistemic causal idealism on textual grounds. In §3, I build on the argument presented in §2 and construct, on Du Châtelet's behalf, a philosophical case for a commitment to epistemic causal idealism. I conclude in §4.

§1 Leibniz on Sufficient Reason and Cause

Leibniz formulates the PSR in several distinct ways: as the claim that nothing happens without reason (NE 179, AG 31); that nothing happens without a cause (AG 31, G. VII. 309); that every fact or true assertion has a sufficient reason for why it is thus and not otherwise (AG 217); that nothing happens without a sufficient reason that determines why it is so and not otherwise (AG 210); that "a reason must be given" for every truth (G. VII. 309); and as the claim that every truth has an *a priori* proof (G. VII. 309).

None of the above formulations involve reference to a finite mind. Yet, in addition to the PSR as formulated above, Leibniz seems committed to a stronger principle when it comes to the natural world. As Rutherford (1992) argues, Leibniz endorses an epistemic constraint on sufficient reason in the form of a 'principle of intelligibility', the principle that "nothing happens for which it is impossible to give a *natural* reason, i.e., a reason drawn from the natures of the beings that belong to this world."[6] Rutherford quotes the following passage from Leibniz's *New Essays* in support of this claim:

> Whenever we find some quality in a subject, we ought to believe that if we understood the nature of both the subject and the quality we would conceive how the quality could arise from it. So within the order of nature (miracles apart) it is not at God's arbitrary discretion to attach this or that quality haphazardly to substances. He will never give them any that are not natural to them, that is, that cannot arise from their nature as explicable modifications. (NE 66/A VI 6)[7]

In the above passage, Leibniz seems committed to not only the claim that there is a sufficient reason for why any subject has some quality, but a stronger principle: the principle that it be *explicable* how the quality arises from the nature of the subject. Rutherford puts the principle as follows:

[6] Rutherford (1992, p. 35).
[7] See also NE 65.

> Within the order of nature, for any entity *a* and any property *F* that is truly predicable of *a*, (i) there is a reason why *a* is *F*; (ii) this reason explains *a*'s being *F* in terms of *F*'s being an "explicable modification" of the nature of *a*.[8]

Sufficient reasons for truths within the order of nature are thus constrained by what creaturely minds can conceive. One can then be said to *know* such a reason just in case one not only conceives, but also satisfies some further conditions (e.g. conceives truly). Yet Leibniz's claim is a conditional one: *if* we understood the nature of both the subject and the quality *then* we would conceive how the quality could arise from it.[9] Thus, even if creatures have the power to conceive of and know sufficient reasons for truths in the natural world, it is far from clear that they can do so in practice or do so often, if they can do so only if they understand or grasp the nature of both the subject and the quality. And indeed, Leibniz is explicit that "most of the time" sufficient reasons cannot be known by us. He writes:

> [the principle] by virtue of which we consider that we can find no true or existent fact, no true assertion, 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 [ne puissent point nous être connues].[10]

> For in necessary propositions, when the analysis is continued indefinitely, it arrives at an equation that is an identity...But in contingent propositions one continues the analysis to infinity through reasons for reasons, so that one never has a complete demonstration, though there is always, underneath, a reason for the truth, but the reason is understood completely only by God, who alone traverses the infinite series in one stroke of mind.[11]

> Thus when we consider carefully the connection of things, we can say that from all time in Alexander's soul there are vestiges of everything that has happened to him and marks of everything that will happen to him and even traces of everything that happens in the universe, even though God alone could recognize them all.[12]

Leibniz's claim above is not merely that "most of the time" sufficient reasons are not, as a matter of fact, known to us, but that they *cannot* be known to us. There are at least two ways in which we might construe this claim, depending on where we locate the source of the unknowability. On the first reading, it is in virtue of a necessary feature that sufficient reasons cannot be known by us. For example, it could be that some sufficient reasons are such that they are infinitely complex and so necessarily beyond the grasp of finite creatures. In such a case, the source of the unknowability would be a necessary feature of our cognitive capacities relative to a class of sufficient reasons.

By contrast, on the second reading, the source of unknowability is located in contingent features. For example, some sufficient reasons might simply lie beyond the realm of what interests

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[8] Rutherford (1992, p. 36).

[9] Cf. Rutherford (1992, p. 41). Rutherford writes that "to the extent that such natures are associated with the notion of an individual "law of the series," they serve also as *explanatory* principles, in the sense that were any mind capable of comprehending fully the law of an individual substance (in the manner of God), that mind would be in a position to understand why that substance possesses all the natural properties it does in the particular order in which they occur." On Leibniz's view, the nature of an individual substance can be fully grasped only by God. Yet the conditional claim '*if* one were to grasp fully the nature, and thus "law" of an individual substance *then* one would be in a position to understand why the substance possesses the natural properties it does' remains true.

[10] GP 6.612/ *Monadology* §32; AG 217

[11] A VI iv 1650/*On Contingency*; AG 28

[12] G IV 433/ *Discourse on Metaphysics* §8; AG 41.

us or what is likely to occur to us in the course of our investigation—something which is in turn determined at least in part by what investigative tools we have at our disposal at any given time. On this reading, contingent limitations make it the case that some sufficient reasons are sometimes beyond our grasp.

The passage from *On Contingency* (quoted above) suggests that Leibniz's claim ought to be understood in the first way: a sufficient reason for a contingent proposition is understood completely only by God, because sufficient reasons for contingent proposition consist in infinitely long analyses and so are necessarily ungraspable by our finite minds. The finitude of our minds poses at least two distinct barriers to grasping an infinitely long analysis: our minds may be incapable of completely grasping something with infinite complexity, or incapable of completely grasping something that has infinitely many steps because our minds are temporally finite (for we do not exist eternally). If we read Leibniz's claim that only God could 'traverse the infinite series in one stroke of mind' against the background of his conception of sufficient reason as *a priori* proof and his concomitant account of contingency in terms of propositions whose sufficient reasons consist in infinitely long analyses, the way in which our finite minds pose a barrier to knowing some sufficient reasons becomes clearer. While each step of an infinitely long analysis that aims to show that a predicate is contained in the subject may be such that we can grasp it, an infinitely long analysis would not be 'traversable' by a finite mind even if it was eternal: it could only ever grasp individual steps of the analysis, and never the whole that God can grasp, for that would require that it be capable of grasping infinite complexity.

That Leibniz is committed to the claim that a wide range of sufficient reasons lie beyond our knowledge and understanding due to our finite minds commits him in turn to a *denial* of epistemic *explanatory* idealism: on Leibniz's view, that a sufficient reason be knowable by us is not a requirement on sufficient reason, and so *a fortiori*, not a constitutive requirement on sufficient reason. Indeed, sufficient reasons for contingent truths are such that only God can know them completely.

Yet, in various places, Leibniz suggests that finite minds are omniscient because each finite mind 'expresses' the whole universe. He writes, for example, in his *Monadology* §56[13]:

> This interconnection or accommodation of all created things to each other, and each to all the others, brings it about that each simple substance has relations that express all the others, and consequently, that each simple substance is a perpetual, living mirror of the universe.[14]

Insofar as simple substances include finite minds, Leibniz's claim implies that each finite mind can express the whole universe, and this view seems to be in *prima facie* tension with his view (discussed above) that most sufficient reasons are unknown by finite minds. If each finite mind expresses the whole universe, then each finite mind also perceives sufficient reasons for all truths that pertain to created substances: for Leibniz, a sufficient reason for a truth about a substance consists in an infinitely long analysis that aims to show that a predicate is contained in the concept of the substance, and so the claim that each finite mind expresses all relations—including, presumably, ones that obtain between the steps of a demonstration—suggests that finite minds know all sufficient reasons for truths about at least all created substances. This tension, however, is only apparent, and disappears once we take into account Leibniz's claim that although each simple substance expresses the whole universe, it does so in a *confused* way. As Leibniz writes:

[13] AG 220.
[14] See also *Discourse* §9/AG 42 and *Primary Truths*, AG 33.

> It can even be said that every substance bears in some way the character of God's infinite wisdom and omnipotence and imitates him as much as it is capable. For it expresses, however confusedly, everything that happens in the universe, whether past, present, or future—this has some resemblance to an infinite perception of knowledge.[15]

In his 1684 essay "Meditations on Knowledge, Truth, and Ideas", Leibniz distinguishes confused knowledge from distinct knowledge, writing that "knowledge is either obscure or *clear*, and again, clear knowledge is either confused or *distinct*".[16] If we take the reference to knowledge in Leibniz's claim in the *Monadology* that most of the time sufficient reasons cannot be known to us to pick out *distinct* (as opposed to *confused*) knowledge, there is no tension between this claim and the claim that each finite mind expresses the whole universe. Since to do otherwise would render Leibniz inconsistent, charity demands that we take Leibniz to be saying that most sufficient reasons—and indeed, all sufficient reasons for contingent truths—are such that we cannot know them *distinctly*.

Does Leibniz's denial of epistemic explanatory idealism (i.e., epistemic idealism about sufficient reasons) extend to a denial of epistemic *causal* idealism? Leibniz does endorse an intimate connection between causes and sufficient reasons. At least one area where this connection is evident is Leibniz's discussion of requisites. An early argument for the PSR that Leibniz wrote between 1671 and 1672 trades on a characterization of sufficient reason according to which a sufficient reason for the existence of a thing consists in all its requisites.[17] Leibniz there first defines a sufficient reason as "that which is such that if it is posited the thing is" and then derives from it the claim that "all the Requirements are a sufficient reason".[18] This characterization of sufficient reason recurs in Leibniz's later work. In his correspondence with Clarke (Letter 5, Sec. 18/LC 60) Leibniz writes:

> …['T]is very strange to charge me with advancing my principle of the want of a sufficient reason, without any proof drawn from the nature of things, or from divine perfections. For the nature of things requires, that every event should have beforehand its conditions, requisites and dispositions, the existence whereof makes the sufficient reason of such an event.

If the sufficient reason for the existence of a thing consists in all its requisites, any one requisite that belongs to all the requisites constitutes a partial sufficient reason. The requisites that constitute a sufficient reason for Leibniz are explanatorily prior necessary conditions, and include causes.[19] Indeed, at least all efficient causes, for Leibniz, qualify as requisites. As Leibniz writes: "[a] cause

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[15] *Discourse*, §9;AG 42.

[16] AG 23.

[17] This argument is from Leibniz's piece entitled *Demontratio Propositionum Primarum* ("Demonstration of Primary Propositions") in the Akademie edition. The argument also occurs in *Confessio Philosophi* ("The Philosopher's Confession*"*) (p. 33), in "De Existentia" (from 1676; *De Summa Rerum*, pp. 110-13), and in Leibniz's last letter to Clarke (Letter V, paragraph 18, G VII 393/ LC 60). See Harrop (2020), Look (2011, p. 204), Piro (2008, p. 466), and Adams (1994, p. 68) for criticisms of this argument, and Della Rocca (2023) for a new argument for the PSR inspired by Leibniz's original argument.

[18] Translation quoted from Adams (1994, p. 68). Adams translates "requisitum" as "requirement", but more recent discussions of the argument opt for "requisite" instead.

[19] See also Adams (1994, p. 117). Adams writes, for example, that "[a] "requirement," in the indicated sense, may be what we would ordinarily call a *cause*, or more precisely, a *causally* necessary condition, particularly if it is what Leibniz calls a "requirement for existence" (A VI, 3, 584, 118)." See Di Bella (2005) for further discussion of Leibniz's notion of a requisite.

is a requisite according to that mode by which the thing is produced".[20] Yet, even if some sufficient reasons for contingent truths are wholly constituted by natural causes (as requisites), it would not follow—given that sufficient reasons for contingent truths cannot be known by us—that some natural causes also cannot be known by us: even if all the requisites for something (and so the sufficient reason) could not be known, it is possible that each individual requisite that is a member of the collective could be known by some finite mind or other. It is thus not clear that Leibniz is committed to a denial of epistemic causal idealism. Yet there is also no evidence that Leibniz *endorses* epistemic causal idealism.

I have argued above that on Leibniz's view, finite minds like ours cannot have (complete) knowledge of sufficient reasons for contingent truths. In what follows, I will argue that, unlike Leibniz, Du Châtelet is committed to both epistemic explanatory idealism and epistemic causal idealism.

§2 Du Châtelet's Departure from Leibniz

Like Leibniz, Du Châtelet endorses an epistemic constraint on sufficient reasons that extends to causes. But in her hands the epistemic constraint takes a distinctive form: it is not a general accessibility constraint or one put in terms of a conditional with an antecedent that poses a principled barrier to knowability, but a constraint that demands that natural sufficient reasons and causes be knowable by us *simpliciter*, and according to which any barriers to that knowability are merely contingent. As we have seen, while Leibniz also endorses an epistemic constraint on sufficient reason, for Leibniz, our finitude poses a principled barrier to the accessibility of sufficient reasons for contingent truths. By contrast, I will argue that not only is Du Châtelet not committed to any such barrier on our access to natural sufficient reasons and causes, but that for Du Châtelet it is *constitutive* of what a natural sufficient reason is that it be knowable by us, and thereby also constitutive of what a natural cause is that it be knowable by us. My case for these claims is both textual and philosophical. I focus primarily on the textual case in this section and turn to the philosophical case in the next.

We get Du Châtelet's characterization of a sufficient reason in the first chapter of the *Institutions*. She writes:

> When asking someone to account for his actions, we persist with our own questions until we obtain a reason that satisfies us, and in all cases we feel that we cannot force our mind to accept something without a sufficient reason, that is to say, without a reason that makes *us understand* why this thing is what it is, rather than something completely different.[21]

In the above passage, Du Châtelet claims that we aim to act in accordance with the PSR when we provide rational explanations for actions by others and that we seek sufficient reasons "in all cases". This reads as merely a descriptive claim about our psychology. But in the same passage, Du Châtelet also characterizes a sufficient reason in terms of a reason that makes *us* understand.[22]

In the section that follows the above passage (§9), Du Châtelet is explicit that what counts as a sufficient reason is constrained by what an "intelligent being" can understand:

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[20] A VI, 4, 629; Cf. Di Bella (2005, p. 78).

[21] IP §8, emphasis added.

[22] See also IP §10, where Du Châtelet claims that "a cause is good only insofar as it satisfies the principle of sufficient reason" and then goes on to say that a vegetative soul is a cause that "contains nothing that helps *us to understand* how the vegetation of which I seek the cause operates" (emphasis added).

> Now a thing cannot come to exist without a sufficient reason, by which an intelligent being might understand why this thing becomes actual, having been possible before. Thus, a cause must contain not only the principle of the actuality of the thing of which it is the cause but also the sufficient reason for this thing, that is to say, what makes it possible for an intelligent being to understand why this thing exists. For any man who makes use of his reason must not be content with knowing that a thing is possible and that it exists, but he must also know the reason why it exists. If he does not see this reason, as often happens when things are too complicated, he must at least be certain that one could not demonstrate that the thing in question cannot have sufficient reason for its existence. Thus, in all that exists there must be something making it possible to understand why something that exists could exist; this is what is called *sufficient reason*.[23]

Du Châtelet writes that a sufficient reason is "that by which an intelligent being might understand why this thing becomes actual" and "that which makes it possible for an intelligent being to understand why this thing exists."[24] What is striking is the contrast that Du Châtelet draws here between "the principle of actuality" and "sufficient reason", where the latter is explicitly epistemic. As we saw in the passage at §8 (quoted above), Du Châtelet endorses an epistemic constraint on sufficient reason that is stronger than the one seemingly endorsed by Leibniz: for her, a sufficient reason enables understanding for finite minds. Yet, the above passage from §9 is more ambiguous for it refers to an 'intelligent being'. The class of intelligent beings is broader than the class of finite intelligent beings, for it includes God, a being with an infinite intellect. Nevertheless, Du Châtelet's remark that "[i]f he does not see this reason, as often happens when things are too complicated…" suggests that she has finite intelligent beings in mind, for nothing would be too complicated for God to see.

It is thus built into Du Châtelet's characterization of a sufficient reason that it enables understanding for us, finite intelligent beings.[25] Yet, one might object that there is another reading available of the above passages.[26] On this reading, what is built into Du Châtelet's characterization of a sufficient reason is just that it enables understanding for some intelligent being or other, where finite intelligent beings are simply one subclass of intelligent being. On this alternative, Du Châtelet *illustrates* her characterization of a sufficient reason with examples that pertain to human beings, but does not commit herself to the claim that any natural sufficient reason is such that it enables understanding for a finite mind. I grant that this alternative interpretation of Du Châtelet's characterization of a sufficient reason is compatible with the above passages, even if not strongly supported by them. However, my original interpretation still strikes me as the more natural. And there is also a further substantive case to be made for it. As I will argue in §3, the alternative reading undermines Du Châtelet's justification for the truth of the PSR by undermining its role in enabling us to secure knowledge, and so does not ultimately succeed as a plausible interpretation.

A sufficient reason would not enable us to understand anything if we could not access it. And indeed, textual and philosophical grounds support the claim that natural sufficient reasons

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[23] IP §9.

[24] The last line of the quoted passage suggests that a sufficient reason, for Du Châtelet, is a reason that enables us to grasp what makes an existent thing *possible*. As Du Châtelet writes, "in all that exists there must be something making it possible to understand why something that exists *could* exist" (emphasis added). Yet, even if we take the text at face value, the preceding sentences make it clear that a sufficient reason for Du Châtelet is not merely a reason that enables one to understand why something is possible, but also a reason that enables one to understand why a thing exists.

[25] See also Amijee (2021) and Wells (2021, 2023).

[26] Thanks to an anonymous referee for raising the objection.

must not only be accessible, but *knowable* by us for Du Châtelet. The PSR plays a central epistemic role for Du Châtelet: it is a foundational principle of *knowledge*. Her discussion of this principle first appears in Chapter 1, "Of The Principles Of Our Knowledge"[27], where she writes:

> The principle on which all contingent truths depend, and which is neither less fundamental nor less universal than that of contradiction, is *the principle of sufficient reason*.[28]

And:

> It must be acknowledged that one could not have rendered the sciences a greater service, for the source of the majority of false reasoning is forgetting sufficient reason…[29]

The PSR for Du Châtelet is a principle of knowledge in the sense that when applied correctly, it enables the acquisition of knowledge. Consider, for example, a beam balance. If everything is alike on both sides of a balance and equal weights are hung on the two ends of the balance, the balance will be at rest. This is because it follows from the PSR that there are no inexplicable states of affairs. A balance that is at rest thereby allows us to conclude that balls placed on each plate of the balance have the same weight.[30] But the PSR would not deliver knowledge if sufficient reasons were unknowable: in order for us to arrive at knowledge on the basis of causal reasoning (e.g., that two balls weigh the same), the sufficient reasons (or lack thereof) appealed to in the reasoning must be knowable. I will return to this point in the next section.

If it is built into Du Châtelet's characterization of a natural sufficient reason that it enables understanding for us, and if this role requires that natural sufficient reasons are knowable by us, then it is arguably *constitutive* of a sufficient reason for Du Châtelet that it is knowable by us. A constitutive connection between a sufficient reason and its in principle knowability by us would then *explain* why every sufficient is such that it is knowable by us.

I have argued above that Du Châtelet is committed to epistemic explanatory idealism with respect to *natural* (i.e., non-divine) sufficient reasons. While my argument in this paper does not require that Du Châtelet's explanatory idealism be understood restrictively as applying to only natural sufficient reasons, and not also divine ones, there are text-based reasons for such a restriction: Du Chatelet suggests that we cannot access divine reasons.

Yet, it may appear that we do have knowledge of some divine reasons for Du Châtelet: she asserts that God created our world because it is the best of all possible worlds.[31] Nevertheless, at

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[27] As an anonymous referee insightfully observes, there is a neglected question about whether 'knowledge' is the most apt or accurate translation for Du Châtelet's use of 'nos connaissances'. In its ordinary use, 'nos connaissances' might pick out (if applied to people) a circle of acquaintance, or (if applied to subject matter) topics with which a person is broadly familiar. Importantly, the epistemic standard that must be met in each case seems short of whatever standard comes with the philosopher's use of 'knowledge'. At the same time, if 'nos connaissances' is meant to have its ordinary meaning, it becomes difficult to understand how Du Châtelet could sensibly take the PSR to be a foundational principle for scientific knowledge. For this reason, I use the standard translation of Du Châtelet's use of 'nos connaissances' as 'knowledge', though I anticipate that my main arguments would go through mutatis mutandis for other reasonable translations, since the arguments ultimately rely only on the assumption that 'nos connaissances' requires cognitive grip on sufficient reasons whose epistemic status goes beyond mere belief.

[28] IP §8, p. 128. See Wells (2021) for a discussion of the sense in which contingent truths *depend* on the PSR for Du Châtelet.

[29] IP §8.

[30] See also IP §8 and LC, p. 7 for Du Châtelet's and Leibniz's respective mentions of the balance example to demonstrate the role of the PSR in reasoning. In light of Leibniz's rejection of epistemic explanatory idealism, Leibniz's discussion of the balance is plausibly understood as illustrative of the PSR, rather than an expression of his commitment to the knowability of some sufficient reasons for contingent truths.

[31] See, for example, IP §26.

least some divine sufficient reasons lie beyond our grasp for Du Châtelet.[32] Du Châtelet writes that God's ideas are very different from ours, and that the way in which God sees and envisages all possible things is, thus, incomprehensible to us".[33] See also IP §26:

> It is true that we cannot see all of this grand tableau of the universe, nor show in detail how the perfection of the whole results from the apparent imperfections we believe we see in some parts, for this would require envisaging the entire universe and being able to compare it with all the other possible universes, which is an attribute of the Divinity.

Since we are in no position to compare our universe with all other possible universes, we are in no position to grasp what the bestness of our world consists in, and so to understand God's reasons for creating this world.[34] Indeed, Du Châtelet writes that "only a Being whose wisdom is infinite is able to choose what is most perfect."[35] We thus have good textual grounds for restricted Du Châtelet's epistemic explanatory idealism to *natural* (i.e., non-divine) sufficient reasons.[36]

Du Châtelet's epistemic explanatory idealism about natural sufficient reasons does not entail that we can always know sufficient reasons in practice. In the passage quoted from IP §9, Du Châtelet implies that it is possible that one may not see the sufficient reason "when things are too complicated". Moreover, for Du Châtelet, not all mechanistic explanations are such that we can grasp them at present.[37]

These caveats provide further clarification about how we ought to understand Du Châtelet's epistemic constraint. A sufficient reason is the sort of reason that makes us understand, and it thus must be the sort of reason that we can know. However, this does not entail that all sufficient reasons are such that we can know them *now*. Many reasons may be such that our present grasp of them is impeded by practical constraints and contingent factors, such as the state of our current science as well as variability in the accessibility of scientific information. Yet importantly, there is no in-principle barrier (such as our finitude) to grasping these sufficient reasons. The barriers are practical and contingent: they have to do with our particular circumstances.

Before moving onto the next section, I will argue that Du Châtelet's epistemic constraint on sufficient reason extends to causation, and that she is therefore committed to epistemic *causal*

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[32] I do not here defend the view that the bestness of our world, in conjunction with God's nature, constitutes a sufficient reason for Du Châtelet. Some reason to think that it does not stems from Du Châtelet's suggestion that a sufficient reason is that which makes it "possible to show how and why an effect can happen". (IP §10) One might doubt whether an explanation that cites merely our world's bestness and God's nature satisfies the bar for what counts as a sufficient reason. In this connection, it is helpful to consider Leibniz's view: Leibniz also endorses the claim that our world exists because it is the best and God creates the best, but as we have seen, Leibniz is also clear that we do not know sufficient reasons for contingent truths. And indeed, as we saw above, Leibniz characterizes a sufficient reason in terms of an *a priori* proof, which is not *prima facie* compatible with the claim that our world exists because it is the best and it is in God's nature to create the best.

[33] IP §24.

[34] Also compare IP §163 (quoted above), where Du Châtelet suggests, though does not explicitly claim, that the "first reason for things" is beyond our grasp.

[35] IP §26.

[36] The claim that every natural sufficient reason is such that it is in principle knowable by us (i.e., by some finite mind or other) is importantly distinct from the claim that a finite mind is such that it can know all natural sufficient reasons. The latter claim would be false if there were infinitely many natural sufficient reasons, for no single finite mind could grasp all of them.

[37] See IP §163. See also §180 in the *Institutions physique* (second edition of the *Institutions*, published in 1742). Cf. Wells (forthcoming).

idealism about natural causes. Du Châtelet endorses an intimate connection between sufficient reason and cause. Consider, for instance, the following passages:

> [A] cause must contain (*contienne*) not only the principle of the actuality of the thing of which it is the cause but also the sufficient reason for this thing...[38]

> This principle banishes from philosophy all the reasonings of the Scholasticism; for the Scholastics accepted that nothing happens without a cause, but they would allege as causes *plastic natures*, *vegetative souls*, and other meaningless words. But once it has been established that a cause is good only insofar as it satisfies the principle of sufficient reason, that is to say, insofar as it contains something making it possible to show how and why an effect can happen, then it becomes impossible to substitute these grand words for ideas.[39]

In the second passage Du Châtelet writes that "a cause is good only insofar as it satisfies the principle of sufficient reason" and then goes on to elucidate this claim by suggesting that a cause "contains something making it possible to show how and why an effect can happen". The same claim occurs in the first quoted passage (quoted in full previously), where she writes that "a cause must contain not only the principle of the actuality of the thing of which it is the cause but also the sufficient reason for this thing". How might a cause "contain" a sufficient reason? The textual evidence underdetermines the answer to this question. Plausibly, Du Châtelet does not mean that a cause can have a sufficient reason as a proper part. I propose instead a *functional* reading of Du Châtelet's claim. On this reading, a cause has a dual *function*: it brings about the effect (as per the principle of actuality) and it enables understanding (as per the principle of sufficient reason). And on this reading, there is no gap between knowing a sufficient reason and knowing the cause that realises it: to know a sufficient reason just is to know a cause in a particular way, in a way that enables knowledge of how and why an effect occurs. I have shown that textual grounds support attributing to Du Châtelet the view that natural sufficient reasons are in principle (if not always in practice) accessible to finite minds and that this feature is constitutive of natural sufficient reason. If for any causal natural sufficient reason (where a *causal* sufficient reason is one that enables us to see how and why an *effect* can happen) to know the sufficient reason is to know the cause that realises it in a particular way, then it follows that for Du Châtelet, it is a constitutive feature of a natural cause that it is also in principle knowable by finite minds. This commits Du Châtelet to epistemic causal idealism about natural causes.

§3 Epistemic Causal Idealism

In the previous section, I argued on primarily textual grounds that for Du Châtelet it is constitutive of natural sufficient reasons and causes that they are knowable by us. I develop this point further in the present section. I will show that the justification Du Châtelet provides for the truth of PSR in the *Institutions* is successful only if she is committed to epistemic causal idealism about natural causes.

Du Châtelet suggests that without the PSR, we could not be certain that the world as we know it continues to exist after we cease to observe it, i.e., we cannot take for granted the stability of the world we experience. She writes:

[38] IP §9.
[39] IP §10.

> If we tried to deny this great principle, we would fall into strange contradictions. For as soon as one accepts that something may happen without sufficient reason, one cannot be sure of anything, for example, that a thing is the same as it was the moment before, since this thing could change at any moment into another of a different kind; thus truths, for us, would exist only for an instant.[40]

Du Châtelet's point can perhaps be put as follows. Our judgement that something we observe has not changed at a later moment when we have ceased to observe it presupposes the truth of the PSR. If the PSR were not true, it would be epistemically possible that a state of affairs I observe at time t_1 (such as that my desk is in my office) is no longer the case at t_2, no matter what other evidence I acquire about potential causes and effects in the world (for example, evidence that no one has entered my office between t_1 and t_2 and attempted to remove the desk). More generally, unless the PSR were true, there would be the possibility that things could happen for no reason at all—a possibility that if left open jeopardizes our ability to rule out defeaters and extend our knowledge through causal reasoning.

Du Châtelet also claims that we need the PSR in order to make judgements about identity and difference. She writes:

> Thus, for example, if I have a ball made out of stone, and a ball of lead, and I am able to put the one in the place of the other in a basin of a pair of scales without the balance changing, I say that the weight of these balls is *identical*, that is the same, and that they are identical in terms of weight. If something could happen without a sufficient reason, I would be unable to state that the weight of the balls is identical, at the very instant when I find that it is identical, since a change could happen in one and not the other for no reason at all…"[41]

While in the previous passage Du Châtelet's concern seems to be with judgements about sameness across time, in this second case, Du Châtelet's concern is with synchronic judgments, i.e., judgements about sameness and difference at a time. Du Châtelet's point seems to be that we cannot judge whether the two balls weigh the same, unless the PSR is true. Absent the truth of the PSR, we could not (justifiably) infer that the two balls weigh the same from the fact that we can put one ball in place of the other without the balance changing, for if the scales could fail to move, and do so *without* reason, then we would not be entitled to infer from their failure to move that the balls weigh the same. Thus, our judgements about sameness and difference (on the basis of reasoning about causes and effects) rely on the truth of the PSR.

The above passages seem to leave open whether our judgements about sameness across time, and about identity and difference, amount to knowledge or a weaker epistemic state. It is moreover ambiguous whether Du Châtelet endorses a stringent Cartesian conception of knowledge—one that precludes the possibility of doubt—or a weaker conception. There is some indication that the epistemic state that Du Châtelet is concerned with is knowledge, and even that it is Cartesian knowledge. First, insofar as the PSR enables the acquisition of knowledge for Du Châtelet, judgements arrived at on the basis of the PSR—in the good case where one knows the relevant facts and applies the PSR to these facts correctly—arguably have the status of knowledge for her. Second, Du Châtelet introduces her foundational principles of knowledge as an alternative to Cartesian 'clear and distinct ideas'. She writes:

[40] IP §8.
[41] IP §8.

> Descartes, who sensed how much this manner of reasoning kept men away from the truth, began by establishing that one must only reason from clear ideas; but he pushed this principle too far: for he allowed a lively, internal sense of clarity and evidence to serve as the basis of our reasonings.[42]

And:

> …So, one must substitute demonstrations for the illusions of our imagination, and not admit anything as truth, except what results incontestably from the first principles that no one can call into question, and reject as false all that is contrary to these principles, or to the truths that one has established with them, whatever the imagination might say.[43]

Some evidence for thinking that Du Châtelet's judgements might have the status of indubitable knowledge stems from the claims that clear and distinct ideas for Descartes serve the role of securing indubitable knowledge, and that the PSR, as a first principle, is (at least partially) meant to replace Cartesian methodology for Du Châtelet. Yet, my argument does not require the claim that Du Châtelet is concerned with indubitable knowledge as such. As long as the PSR enables the acquisition of knowledge (indubitable or otherwise) through the kind of causal reasoning demonstrated in the above passages, then on the assumption that knowledge is factive, the PSR must be *true*, and not merely believed or presumed to be true.

But in order for us to come to know truths on the basis of causal reasoning, it is not enough that the PSR be true. As I will argue, it also must be the case that sufficient reasons relevant to such reasoning are in principle knowable by us. To see why, suppose that a sufficient reason relevant to the conclusion that the ball of stone and the ball of lead weigh the same in the above example of the balance could not be known. Then we could not infer from the fact that the scale does not change when one ball is put in place of the other, that the balls weigh the same, for there may be a sufficient reason unknowable by us in principle (such as a mysterious force field) which explains why the scale does not change, even if one ball weighs more than the other. If we cannot know such a reason, we cannot rule out the possibility that it does not obtain.[44]

Of course, it may happen that the state of our current science, our limited access to it, as well as limitations to do with our powers of reasoning, prevent us from knowing a sufficient reason relevant to our causal reasoning.[45] But such in-practice unknowability does not jeopardise the possibility of causal reasoning. This is because in-practice unknowability, as well as the errors in reasoning it may generate, is remediable. By contrast, the possibility of natural sufficient reasons that are unknowable in principle threatens scepticism: on the assumption that epistemic explanatory idealism is false for natural sufficient reasons, and that we cannot know *which* truths are such that their sufficient reasons cannot be known by us, we could not extend our knowledge on the basis of causal reasoning (and this would not be a merely temporary situation, remediable by further discovery). But the PSR could not then provide a foundation for knowledge. Thus, Du Châtelet is committed not merely to the claim that "as soon as one accepts that something may

[42] IP §2.
[43] Ibid.
[44] As I have reconstructed it, this argument suggests that Du Châtelet is committed to a conception of knowledge on which every defeater must be capable (at least in principle) of being ruled out by a knower. This would bring her conception of knowledge closer to a Cartesian one, but significant daylight would still exist between their views (though a full defense of this claim goes beyond the scope of this paper).
[45] There is a distinction between knowing a sufficient reason, and knowing a reason *as* a sufficient reason. One may, for example, grasp a truth, but fail to see it as a sufficient reason for the *explanandum*. To know the sufficient reason for a truth arguably requires both: grasping the truth, and grasping its explanatory relation to the *explanandum*.

happen without sufficient reason, one cannot be sure of anything" [46], but the stronger claim that if a sufficient reason relevant to our causal reasoning is in principle unknowable by us, we cannot be sure of anything. To return to a worry raised in §2, we are now in a position to see why it would be both uncharitable and implausible to attribute to Du Châtelet the weaker claim that a natural sufficient reason is such that it enables understanding for some intelligent being or other, instead of the stronger claim that a natural sufficient reason is such that it enables understanding for some *finite* intelligent being or other. If we took Du Châtelet to be committed to the first claim, then there would be no guarantee that every natural sufficient reason is such that it enables understanding for some finite intelligent being, and subsequently no guarantee that every natural sufficient reason is in principle graspable, and so knowable, by some finite intelligent being. On the assumption that we cannot know which truths are such that their sufficient reasons could not be known by us, scepticism would threaten.

If it is not the case that at least some natural sufficient reasons for truths are in principle unknowable by us, then all natural sufficient reasons for truths are in principle knowable by us. In the previous section I argued that Du Châtelet's commitment to epistemic explanatory idealism should be restricted to natural sufficient reasons, and that likewise her commitment to epistemic causal idealism should be restricted to natural causes. Yet, one might wonder whether these theses should not be restricted further. Du Châtelet suggests that disagreements about the "first principles of things" do not affect our empirical investigations, "for, in our experiments we never will arrive at these first elements of which bodies are composed and the physical atoms (§.172), though in their turn composed of simple beings, are more than sufficient to exercise our desire for knowledge."[47] This claim in turn suggests that causation at the level of simples does not play a role in our causal reasoning, and that causes at the level of simples need not be knowable by us.[48]

In reply, I grant that the argument from the possibility of acquiring knowledge through causal reasoning does not obviously extend to *all* natural causes. Nevertheless, I contend that we have reason to not further restrict the scope of Du Châtelet's epistemic explanatory and causal idealism. First, there is no textual evidence to suggest that a restricted class of natural sufficient reasons—such as the sufficient reasons for contingent truths about spatial and temporal phenomena—is what Du Châtelet has in mind when she claims that a sufficient reason is that which enables us to understand why a thing "is what it is, rather than something completely different".[49] Second, my argument for excluding divine reasons from the scope of Du Châtelet's epistemic explanatory idealism does not extend to her simples or other causes outside of the spatiotemporal phenomenal realm. Du Châtelet is clear that our finitude poses a hard barrier to grasping at least some divine reasons. As discussed in the previous section, God is infinitely wise and perceives with an infinite understanding, and only such a being can choose the most world to actualise. By contrast, because we are finite beings, "[t]he way in which God sees and envisages all possible things" is "incomprehensible to us."[50] There is no such barrier with respect to our knowledge of a class of natural causes outside the realm of spatiotemporal phenomena, such as in the realm of simples. Du Châtelet does suggest that the causal activity of simples is outside the scope of what can be investigated empirically, but that does not entail that the causal activity of

[46] IP §8.
[47] IP §136.
[48] Thanks to an anonymous referee for raising this objection.
[49] IP §8, emphasis added.
[50] IP §24.

simples is unknowable by us *tout court*. Indeed, Du Châtelet holds that bodies act on one another[51], and that the connection between bodies is to be ultimately explained in terms of simples.[52] The explanatory relationship that obtains between any 'connection' between bodies and simples enables us to have knowledge of the causal activity of simples indirectly, through description. For example, we might use the description 'the causal activity that grounds the causal relation between bodies b_1 and b_2' to refer to, and have knowledge of, causal activity at the level of simples. Thus, even though Du Châtelet, like Leibniz, holds that what we encounter directly in nature are merely phenomena, and that our perceptual access to simples is at best confused[53], Du Châtelet's view can nevertheless accommodate the possibility of inferential knowledge of the causal activity of simples. In the absence of evidence to the contrary, we should thus refrain from putting a further restriction on Du Châtelet's commitment to epistemic explanatory idealism.

I have argued that for Du Châtelet our ability to reason about causes and effects in a way that yields knowledge does not depend merely on the truth of the PSR; it depends on the PSR *and* the presumption that we can at least in principle acquire knowledge of sufficient reasons for contingent truths about the natural world. Finally, since natural causes for Du Châtelet are in good standing only insofar as they satisfy the PSR, we get the result that natural causes for Du Châtelet must be such that we can in principle know them. This argument can be summarised as follows:

> P1. The (truth of the) PSR enables the acquisition of knowledge through causal reasoning.
>
> P2. The PSR could not enable the acquisition of knowledge through causal reasoning unless natural sufficient reasons were in principle knowable by us.
>
> P3. Natural sufficient reasons are in principle knowable by us [from P1 and P2]
>
> P4. For any (causal) sufficient reason, to know the sufficient reason is to know the cause that realises it in a particular way.
>
> C. Natural causes are in principle knowable by us [from P3 and P4, since natural sufficient reasons are, by definition, realised by natural causes]

As discussed previously, epistemic causal idealism is stronger than the mere claim there is a modal connection between natural causes and their knowability by finite minds. It is the claim that it is *constitutive* of natural causes that they are knowable by finite minds. I have argued that we can conclude that Du Châtelet is committed to epistemic causal idealism about natural causes on two distinct grounds. First, as discussed in the previous section, textual evidence supports the claim that it is a constitutive feature of a natural cause that it is accessible by finite minds. Second, as I have shown, Du Châtelet is committed to the in principle knowability of natural sufficient reasons, and thus natural causes, on the grounds that the PSR is a foundational principle that secures the possibility of acquiring knowledge through causal reasoning. If we take the role of the PSR in Du Châtelet's system to be constitutive of the principle, and if the PSR cannot perform this role without the in principle knowability-by-us of natural sufficient reasons, then it is plausibly constitutive of a natural sufficient reason that it be in principle knowable by us. There is, moreover, no alternative explanation for why natural sufficient reasons, for Du Châtelet, are in principle

[51] See, for example, §259.

[52] IP §131, Du Châtelet writes that "[t]he original reasons for all that happens in bodies lie necessarily in the elements of which they are composed. It follows that the original reason for the connection of bodies to each other, insofar as they coexist and succeed each other, lies in simple beings. So, the connection of the parts of the world depends on the connection of the elements, which is the foundation and the first origin."

[53] See, for example, IP §154.

knowable by us (an explanation, for example, to the effect that God has directly made natural sufficient reasons in principle knowable by us).

Yet, one might argue that it is ultimately due to God that it is constitutive of natural sufficient reasons that they are in principle knowable by finite minds. For example, one might argue that God's benevolence demands that it is constitutive of natural sufficient reasons that they be in principle knowable by finite minds.[54] The *ultimate* explanation for why such sufficient reasons are in principle knowable by us would then not consist in a constitutive feature of natural sufficient reasons, but in God's benevolence. However, this explanation for the knowability of natural sufficient reasons by finite minds does not compete with an explanation that appeals to a constitutive feature of natural sufficient reasons. By contrast, a competing alternative explanation for the knowability of natural sufficient reasons by finite minds might consist in God's *directly*, and not through any feature had by a natural sufficient reason or finite mind, making it the case that natural sufficient reasons are in principle knowable by finite minds.[55] Yet Du Châtelet elsewhere denies that the will of God suffices as an explanation, and so for Du Châtelet the view under consideration would entail that it is inexplicable—and so a brute fact—that any natural sufficient reason is in principle knowable by us.[56] Du Châtelet's thoroughgoing commitment to the intelligibility of the world thus rules out the view.

§4 Concluding Remarks

I have argued that unlike Leibniz, Du Châtelet is committed to both epistemic explanatory idealism about natural sufficient reasons and epistemic causal idealism about natural causes. Importantly, my claim is not that Du Châtelet herself claims that she is an epistemic explanatory or causal idealist. It is that Du Châtelet's views about the role of the PSR, and her argument for the principle, together with the intimate connection she explicitly endorses between natural causes and sufficient reasons, *commit her* to epistemic causal idealism (whether she would herself endorse such an attribution or not). As such, the aim of this paper has not been to demonstrate a conclusion on purely textual grounds: it goes further by showing how claims that have a basis in the text commit Du Châtelet to a radical and underappreciated philosophical position. Yet, Du Châtelet's commitment to epistemic explanatory idealism about natural sufficient reasons and causal idealism about natural causes also reinforces Du Châtelet's commitment to science: insofar as science must involve the investigation of natural causes, it requires that such causes are not placed beyond our reach.

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[54] Many thanks to an anonymous referee for raising this point.

[55] The contrast is akin to the one between occasionalism and mere conservationism with respect to God's activity: on both views, God is the ultimate reason for any natural effect. But whereas on the occasionalist view God brings about the effect directly, on mere conservationism an effect can be brought about indirectly by God, who creates substances with causal powers of their own.

[56] Cf. IP §162.

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