

Efficient Causation in Spinoza and Leibniz

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Early modern philosophers, nearly without exception, believe that causes *necessitate* their effects. If the cause exists or occurs, then the effect must also exist or occur. This “must” is understood by the early moderns in the strongest possible sense. There are absolutely no possible circumstances, they believe, in which the cause exists or occurs but the effect does not. We could say that, according to the early moderns, the sense of necessity with which causes necessitate their effects is absolute or logical necessity. This is the opinion of Hobbes,¹ Descartes,² Locke,³ Malebranche,⁴ Spinoza, and, I will argue, Leibniz. Even Hume, who denied that the causal relation is a necessary connection, assumed

1 Hobbes 2011, II.9.3.

2 AT 7:70/CSM 2:48. I am here relying upon the reading of this text according to which the argument presupposes that causal connections are absolutely necessary sound; see Sleight 1990, 176.

3 Locke 1975, IV.iii.25, 556.

4 OCM 2:316/LO 450.

that, if it were, it would be absolutely or logically necessary.⁵ That they thought so has struck many as mysterious.⁶ It might seem mysterious to a contemporary philosopher because we are accustomed to seeing causation not as a relation of absolute necessity but of dependence, or probability raising, or some kind of necessity weaker than absolute. And even the historically informed philosopher who conscientiously endeavors to resist anachronism has reason to be surprised. The medievalists typically thought that causal necessity was weaker than logical or absolute necessity, so there was a historical precedent for understanding causal necessity as a kind of necessity weaker than logical or absolute necessity. Why did the early moderns think otherwise?

Before approaching this question, it will be worthwhile to consider the reasons why many philosophers have thought that causal connections are not absolutely necessary. There are at least four reasons for thinking so: (1) causes depend on background conditions, (2) causation is probabilistic, (3) the laws of nature are not necessary, and (4) miracles. Let us briefly consider each of these reasons.

DEPENDENCE: Causes appear to depend on background conditions. Striking the match ignited it. But it wouldn't have in a vacuum. That there is oxygen in the environment is a background condition upon which the causal connection depends. Because this condition is merely contingent, there are possible circumstances in which the striking doesn't ignite the match. Thus, there is no necessary connection between the striking and the ignition. If the match hadn't been struck, however, the match would not have ignited. The ignition *depends* on the striking, although it is not necessitated by it. For this reason, many philosophers have concluded that causation is a relation of dependence but not necessity. "Dependence" thus has a double meaning in this context. First, causes depend on their background conditions. Consequently, effects merely depend on their causes.

⁵ Hume 1978, 168. See Chapter 8 in this volume for more on Hume's account of causation.

⁶ Such puzzlement is registered by Steven Nadler, for example, in Nadler 1996.

PROBABILISTIC CAUSATION: We could insist that the total or complete cause necessitates and the striking was merely a partial cause. On this view, the total cause includes what are, perhaps for pragmatic reasons, pushed into the so-called background conditions. Even so, there is reason to doubt that the laws that govern the evolution of the world are deterministic. If the fundamental laws are genuinely probabilistic, then causes can necessitate nothing more than probability distributions. Paradigmatic effects are not themselves probability distributions. Rather it is possible effects over which probabilities are distributed. Thus, such effects themselves are not necessitated.

CONTINGENT LAWS: If a contemporary philosopher still believes, despite these considerations, that causes necessitate their effects, she likely also believes that the kind of necessity involved is something far short of logical or absolute necessity. The force, energy, or power encompassed by a given state of the world necessitates its future states, but not with the same strength that the premises of a logically valid argument entail its conclusion. For example, the direction that these powers or forces push the world depends upon the laws of nature. These laws, many believe, are themselves contingent. We can, it is alleged, conceive of the world as governed by different laws. We can, or so Hume insisted, conceive of bread failing to nourish a man.⁷ We might be inclined, therefore, to identify causal necessity with natural necessity. Translated into the idiom of possible worlds, we could say that causes necessitate their effects in the sense that, in every world in which the laws are as they are in the actual world, the effect follows the cause.

MIRACLES: Earlier philosophers had other reasons for doubting that causation is an absolutely or logically necessary connection. The medievals often believed that the natural powers of creatures could be

⁷ Hume 1999, §4.

overridden by the miraculous intervention of God.⁸ The striking of the match naturally causes it to ignite, but a miracle could block this natural consequence. Hence, it is not absolutely or logically necessary that the striking causes the ignition.

Against this backdrop, the prevalence of the view that causes absolutely necessitate their effects in the early modern period is surprising. We are unaccustomed to regard the causal relation as absolutely necessary, conditioned as we are by the arguments of more recent philosophers to the contrary. And there were already historical precedents that should have alerted the early moderns to the possibility that causal necessity is not absolute. Once the option of less than absolute causal necessity is on the table, how could a reasonable philosopher think otherwise?

I will not attempt a completely general answer to this question here. Instead I will focus on just two philosophers, Spinoza and Leibniz. Although it is far more obvious in the case of Spinoza than Leibniz, I will argue that both philosophers hold that causal necessity is absolute. I will attempt further to find the reasons that stand behind their conviction. It is reasonable to hope that once we understand the reasons why these two philosophers believed that causal necessity is absolute, we will have a better idea of why the idea was so widespread in the period. I am afraid, however, that I must confess from the outset that some of my conclusions will be disappointing. I will argue that the reasons of Spinoza and Leibniz do not generalize, and so much of the mystery is left unsolved.

Before proceeding, it will be useful to say a few words about kinds of necessity: logical, metaphysical, absolute, natural, causal, and so on. If we are to answer the questions under discussion in this chapter, then we need to have some clarity on the notion of kinds of necessity. Kinds

8 See, for example, Thomas Aquinas 1932–34, *Qu.* 1, art. 3–5. Walter Ott argues that it is a mistake to read the medievals as holding that causal necessity is not absolute, because he thinks that miracles involve a withdrawal of divine concurrence, which is a condition for causation (see Ott 2009). The above-cited text of Aquinas, however, does not contain a discussion of divine concurrence, which would be surprising if it were the key to his thought on miracles. So, at least some medievals did not see the situation as Ott describes it.

of necessity can be thought of as what is necessary provided that some condition is met. Natural necessity, for example, is sometimes thought of as what is necessary given that the actual laws of nature hold. Causal necessity would then be what is necessary given that the actual features that ground causation hold. Whether or not causal and natural necessity are the same turns on whether or not the laws of nature are all the features that ground causation.

1. SPINOZA

The notion of causation plays a central role in Spinoza's philosophy. He claims that God is self-caused as well as the efficient cause of both the essences and existence of his creatures. He says that God is the cause of himself in the same sense that he is the cause of his creatures, and so he is the efficient cause of himself. He also says that the causal powers of finite things are rooted in a striving for self-preservation. And, perhaps most famously, he launches a ferocious attack on the notion of divine providence and the notion of final causation that it involves.⁹ How does Spinoza understand causation? In particular, how does he understand causal necessity? I will begin by presenting the textual evidence to support the view that Spinoza thought that causal necessity was absolute. Next, I will consider the question of why Spinoza believes that causal necessity is absolute by first exploring some promising but ultimately failed attempts to explain it, and then by presenting my own solution. Finally, I will argue that the considerations that lead other philosophers to deny that causal necessity is absolute would not move Spinoza due to his larger philosophical commitments.

The textual evidence that Spinoza thought that causal necessity is absolute is unequivocal. In 1a3 of his *Ethics*, Spinoza writes: "From a

⁹ Whether or not Spinoza rejects all final causation is a controversial issue. Some commentators, most notably Don Garrett, have argued that Spinoza's conatus doctrine is teleological and hence that Spinoza anticipates Leibniz in reintroducing final causation into early modern metaphysics. See Garrett 1999.

given determinate cause the effect follows necessarily; and conversely, if there is no determinate cause, it is impossible for an effect to follow.”¹⁰ This indicates that Spinoza views causation as a necessary connection, but it leaves unspecified the strength of the necessity involved. Other texts, however, show that Spinoza thinks that the kind of necessity involved is absolute or logical. In 1p16 Spinoza glides from the claim that from the definition of God follows infinitely many things to the claim that God is the *efficient cause* of infinitely many things. Nothing prepares us for this transition, and he presents it without argument as if it ought to be obvious. What is more, in the scholium to the very next proposition, he directly compares the necessity of God’s efficient causality to logical or mathematical necessity. There he claims that it would be equally absurd if God could bring it about that the interior angles of a triangle are not equal to two right angles and if God could bring it about that an effect didn’t follow from a given cause. It is striking that he characterizes the scenario in which an effect wouldn’t follow from its cause as *absurd*. This suggests that Spinoza would regard such failure as not merely contrary to *nature*, but also contrary to *reason*. And he explicitly asserts that the kind of necessity involved in causal relations is the very same kind as is involved in logical or mathematical relations. We can see plainly that Spinoza believed that causal necessity is logical necessity. But why did he believe this?

Perhaps the answer can be found in Spinoza’s causal criteria for good definitions. Spinoza thinks that good definitions must include, in case of created things, the proximate causes of a thing.¹¹ He also thinks that good definitions are such that we can deduce all of the definiendum’s properties from its definition.¹² He goes on to offer a similar treatment of the definitions of uncreated things (presumably what he will call

10 Does Spinoza here mean to restrict the axiom to “determinate” causes? Are there indeterminate causes to which the axiom applies? I am not aware of any evidence that Spinoza believes the bizarre proposition that there are indeterminate things. I read the axiom as meaning that from a specific cause a specific effect follows.

11 TEdI 96, G 2:35/CWS 40.

12 G 2:35/CWS 40.

“self-caused” things in the *Ethics*.) The relevant conditions on such things are:

That it should exclude every cause, that is, that the object should require nothing else except its own being for its explanation [...] Finally (though it is not very necessary to note this) it is required that all its properties be inferred from its definition. (TEdI 97, G 2:35 / CWS 40)

In these texts we find Spinoza relating definitions to causes in two ways. First, if a thing is created, then its definition must specify its causes. This establishes a necessary connection between cause and effect. Indeed, it specifies an absolutely necessary connection between cause and effect. If, for example, it is part of the definition of human beings that they are produced by other human beings, then it is no more possible that a human being come from nonhuman animals or from the swamp than that a bachelor could be married.

But there are two difficulties with this explanation of Spinoza's views. First, the necessity runs from effect to cause. If the cause is part of the definition of the effect, then the definition of the effect entails or necessitates the cause rather than the cause necessitating the effect. Second, this condition is compatible with causes that don't necessitate.¹³ For example, suppose a thing is the result of a probabilistic cause. Then, according to Spinoza, the cause must be included in the definition. It is thus true by definition that the definiendum has this cause and, indeed, it would be an absolutely necessary truth that the definiendum has this cause. But, for all this, the cause did not absolutely necessitate the effect. For this reason, the condition that definitions must include causes is not relevant to understanding Spinoza's remarks in E1p16c1 and E1p17s, where Spinoza is clearly discussing an entailment from causes to effects.

¹³ I am indebted for this point to John Morrison.

The other condition that Spinoza lays down for definitions is that a proper definition is such that all the properties of the definiendum can be inferred from it. This condition makes no explicit reference to causation. It does, however, resonate with Spinoza's defense of the claim that from the divine nature infinitely many things follow, in which he asserts that the intellect infers the properties of a thing from its definition (E2p16d, G 2:104/CWS 463) and from which he concludes that God is the efficient cause of all things (E1p16c1, G 2:60/CWS 425). "Things following from a nature" appears to be identified with "properties following from a definition." And both are compared to effects following from an efficient cause.

The first puzzle that must be addressed here is why Spinoza identifies things following from a nature with properties following from a definition. The connection between natures and definitions is clear enough. It's common to think of a real definition as what specifies a nature or essence. The more puzzling issue is why Spinoza identifies things with properties. Is this not a conflation of metaphysical categories? This identification will seem less odd if we are mindful of Spinoza's own somewhat idiosyncratic account of the basic metaphysical categories. For him, the central categories are substance, attribute, and mode. Modes are both particular things (although not substances) and ways that a substance exemplifies an attribute. In other words, they are substances insofar as the substance in which they inhere exemplifies some property. In this sense, a fist is a mode of a hand: a fist is a hand insofar as it is closed. As such they are, in some sense, adjectival on substance. And so they cut across the categories of property and things. The things that follow from the divine nature and the properties that follow from God's essence are, in both cases, the modes of God or the ways that God exemplifies his attributes.

But is there a connection between properties or modes following from the definition of a thing and the causal relations into which a thing enters? There is one obvious way that there could be such a connection. If all of the properties of a thing follow from its definition,

then all of the properties that relate to its causal relations follow from it. For example, Brutus killed Caesar. So Brutus has the property of killing Caesar. Thus the property of killing Caesar follows from Brutus' definition. But would Spinoza regard *being such as to kill Caesar* as a property of Brutus? Contemporary philosophers often think of properties as cheap and abundant, sometimes identifying them with sets, but early moderns typically did not. Instead, they thought of properties as metaphysically robust: properties are real constituents of objects. That Spinoza shares this opinion can be seen from the fact that in E1P16d he identifies properties with modes. Mode is one of the ontological categories. So properties are in his fundamental ontology. Contrasts this with sets. Sets, even among those who believe in them, are not typically thought to be part of the world's fundamental ontology. They are supervenient beings. They require no special act of creation.

I suspect that Spinoza would not regard a putative property like *being such as to kill Brutus* as a genuine property. Spinoza, like many seventeenth-century philosophers, classifies relations as beings of reason (KVX, G 1:49/CWS 92). We cannot turn a being of reason into a real entity simply by saturating an argument place. That is, we cannot turn a mere being of reason like the relation *x kills y* into a metaphysically robust property by replacing *y* with *Brutus*.

What does explain Spinoza's belief that causes necessitate their effects in an absolute or logical sense? It is very difficult to say. The claim that causes necessitate their effects is introduced in the *Ethics* without argument as an axiom: "From a given determinate cause the effect follows necessarily; and conversely, if there is no determinate cause, it is impossible for an effect to follow" (E1a3, G 2:4.6/CWS 410). He does not explicitly consider the question later in the *Ethics* or in any other work. Indeed, one might conclude from its status as an axiom that Spinoza regards it as basic. But the inclusion of a claim among the axioms of the *Ethics* does not mean that Spinoza thinks that it is impossible to provide a deeper foundation for it. He regards E1p7, for example, as

axiomatic and yet he presumes to give an argument for it. So, it is not illegitimate by Spinoza's lights to ask about the deeper intellectual foundation for something introduced as an axiom. I conjecture that if there is a deeper basis for Spinoza's belief that causes absolutely necessitate their effects, it can be found in his commitment to the Principle of Sufficient Reason (PSR). The PSR says that there is a *sufficient* reason for everything. Sufficient reasons necessitate the things they explain. If x is sufficient for y , then there are no possible circumstances in which x occurs but not y . That is, x necessitates y . The specific version of the PSR that Spinoza endorses says that each thing has a cause or reason (*causa sive ratio*) (E1p11d, G 2:53/CWS 417-18). *Sive* means "or" in the sense of "or in other words." So the demand for a reason is tantamount to a demand for a cause. Sufficient reasons are sufficient causes. So causes must necessitate. I know of no text where Spinoza explicitly reasons in this way, but he is committed to the PSR, and the PSR is very congenial to the idea that causes necessitate.

This interpretation finds some confirmation when we consider why Spinoza would not be moved by the considerations that lead other philosophers to either reject causation as a necessary relation or to insist that causal necessity is weaker than absolute necessity. I will argue that in each case, Spinoza's commitment to the PSR would lead him to discount these considerations. Recall that among contemporary philosophers, the denial that causation is a necessary connection of any sort, let alone an absolute or necessary connection, is encouraged by two factors: **DEPENDENCE**: the observation that causes are dependent on background conditions, which can vary; and **PROBABILISTIC CAUSATION**: the idea that the fundamental laws of nature might be probabilistic. A third factor, **CONTINGENT LAWS**, leads philosophers to believe that even if causation is a necessary connection, it is not an absolutely necessary connection because the laws of nature are not absolutely necessary. Among Spinoza's medieval predecessors, the idea that causes do not absolutely or logically necessitate their effects was promoted by **MIRACLES**: the belief that God could defeat the natural causal powers of

things by means of a miracle. None of these factors have any role in Spinoza's philosophy due principally to his commitment to the PSR.

Consider first DEPENDENCE. The striking of the match caused it to ignite. The ignition depends on the striking but it isn't necessitated by it since the ignition wouldn't have occurred if there had been no oxygen. In other words, effects depend on their causes but aren't necessitated by them. But this picture is incompatible with the PSR. There is, according to the PSR, a sufficient reason for everything, and Spinoza treats "reason" as synonymous with "cause" in texts where the PSR is under discussion (EIp11d, G 2:52-53/CWS 417-18). So causes must be sufficient for their effects. This is incompatible with the idea that causes operate in the context of background conditions, because only the causes in conjunction with the background conditions are sufficient for the effects. The main alternative to thinking that causes operate in the context of background conditions is to see the alleged cause as merely a partial cause and the alleged background conditions as partial causes in their own right. So, in our example, the striking isn't *the* cause of the ignition. It is *a* cause or a partial cause. And so are the presence of oxygen, etc. Spinoza speaks of partial causes but not background conditions.¹⁴ So presumably he would regard the striking of the match as merely a partial cause. The total cause would be the striking in conjunction with the so-called background conditions. And this total cause would be sufficient for the ignition. This fits well with his commitment to the PSR, which requires causes or reasons to be sufficient for their explananda.

Spinoza's commitment to the PSR would also lead him to deny PROBABILISTIC CAUSATION. Suppose there is an atom of uranium that decays at time t . Suppose further that the laws that govern the decay of atoms of uranium are probabilistic. That is, the law determines only a probability distribution for the time of the decay. For example, the law assigns a probability p to the decay of the atom at t given the initial conditions.

¹⁴ See EIIIpd1, IIIId2, IIIp1, and IVp2.

So the initial conditions and the laws are not jointly a sufficient reason for the decay. There are possible circumstances in which the initial conditions and laws are what they are but the atom does not decay at t . But this possibility contradicts the PSR, to which Spinoza is committed. For this reason, Spinoza's world must be strictly deterministic.

Spinoza's commitment to the PSR also leads him to deny CONTINGENT LAWS. Spinoza speaks frequently of laws of nature, which he appears to identify with what he calls the "laws of God's nature."¹⁵ Moreover, he sometimes identifies the laws of God's own nature with "the necessity of the divine nature" (E Ip17d, G 2:61/CWS 425), and sometimes says that the laws of nature "follow from necessity and perfection of the divine nature" (TTP 6.7). Both formulations strongly suggest that the laws are necessary. Such necessity is congenial to the PSR. If the laws were contingent, there would have to be a contingent cause or reason why they were one way rather than another. Perhaps they are ordained by God's will. But if God's will is contingent, what could be the sufficient reason for it? By identifying the laws of nature with the necessity of God's nature, Spinoza forecloses such worrying questions.

Spinoza also denies MIRACLES because he doesn't think that anything, including miracles, violates the natural order. (TTP 6.7). Spinoza affirms that God does everything by the necessity of his own nature. If God were to perform a miracle that violates the natural order, then something would follow from God's nature that contradicts something that follows from his nature. On the assumption that God's nature is coherent, this is impossible. It is not hard to discern the appeal of these views to someone who holds the PSR. Suppose that there are miracles. These cannot follow from God's absolute nature, since otherwise they would be always and everywhere. The most natural alternative is that they follow from God's free decisions. Then, of course, Spinoza would have to give up his identification of the divine intellect with the divine will. And so the divine will would require a sufficient

15 See EIp15, Ip17, Ip17d, appendix to part I, the preface to part III, IIIp2d.

reason. It is very hard to see what such a reason could be without compromising divine freedom. By denying the possibility of miracles, the adherent to the PSR avoids all of these awkward questions.

2. LEIBNIZ

As it does in Spinoza's, the notion of causation plays a central role in the philosophy of Leibniz. In particular, Leibniz thinks that the new philosophy of the seventeenth century has been too quick to discard the substantial forms of the Aristotelians. He thinks this because he believes that substances, the basic entities that constitute the fundamental level of reality, must be causally active, and that it is impossible to explain causal activity without recourse to something analogous to substantial forms. Given this picture, there is a question regarding the way different varieties of causation (efficient, final, and formal) fit together. I will largely ignore these questions. I will mainly speak of causation generically. If the variety of causation matters, I will take efficient causation to be the default example.

The plan of this section will be as follows. First, I will review some of the main points of Leibniz's views on causation. Next, I will argue that although some commentators, such as Robert Sleigh,¹⁶ have argued that Leibniz does not think that causal necessity is absolute, Leibniz is committed to this thesis by some of his views about causation and modality. I will then offer textual evidence that Leibniz is aware of this commitment and accepts it. I will next explain why the considerations that have led other philosophers to deny this would not move Leibniz, paying special attention to the difficult issue of miracles.

But before dealing directly with question of causal necessity, it will be worthwhile to first articulate some basic features of Leibniz's thoughts about causality. This will provide the context for what comes next.

¹⁶ Sleigh 1990, 171. This is also, as I read her, Margaret Wilson's position in Wilson 1994.

One of the main themes of Leibniz's philosophy is the need for the rehabilitation of substantial forms.¹⁷ Mechanical philosophers of the seventeenth century had tended to disparage substantial forms as mysterious and attempted to explain natural changes by reference to size, shape, and motion alone. Leibniz thought that size, shape, and motion cannot explain change, and that something like force must be added to the mix.¹⁸ Force, Leibniz thought, is like an internal principle of change, and so akin to the substantial forms of the scholastics. He does not view this internal principle as merely a formal cause, but also as an efficient cause, and he describes the essence of a substance as its primitive active force. The primitive active force is what causes the changes in a substance. Also relevant to the changes that a substance undergoes are its accidents: its perceptions and appetitions. Perceptions are the qualities that inhere in a substance. Appetitions are the way that primitive active force is manifested in the context of the perceptions of a substance.¹⁹ In other words, a substance changes over time in virtue of its perceptions and the appetitions that push it from one state to the next. These are the *only* effects produced by a finite substance. Such substances do not causally interact with each other. The appearance of interaction is produced, rather, by a preestablished harmony preordained by God, which ensures that all of a substance's self-caused changes appropriately correlate with the changes self-caused by every other finite substance.

Since our topic is the necessity of the causal relation, we would do well to examine Leibniz's thoughts on necessity itself. Leibniz has distinctive views about the analysis of necessity. One way to begin our inquiry is to try to formulate the issue of the necessity of the causal relation in terms of Leibniz's analysis of necessity. As is well known, Leibniz has two main accounts of necessity. The most famous is the

17 DM 10, G 4:434–35/AG 42; *A New System of Nature*, G 4:478–79/AG 139; *On Nature Itself*, G 4:511/AG 162. For an excellent treatment of this issue, see Garber 2009, chs. 3 and 4.

18 *A Specimen of Dynamics*, GM 6:236/AG 119; *A New System of Nature*, G 4:510–12/AG 161–63.

19 Mon 15, G 6:609.

account according to which a truth is necessary just in case it can be demonstrated by analysis in a finite number of steps.²⁰ This is an account of the necessity of truths and not an account of the necessity of a relation between states or events. But it is natural to think the necessity of such a relation can be represented by a necessary conditional proposition. For example, if striking a match causes it to ignite and causation is a necessary connection, then it is true that, necessarily, if the match is struck, then it ignites. So, if causes necessitate in an absolute or logical sense of necessity, then the truth of the conditional “If the match is struck, then it ignites” can be demonstrated by analysis in a finite number of steps.

Would Leibniz think that such causal statements can be so analyzed? It is exceedingly difficult to say. Leibniz’s discussions of necessary truths typically presume that such truths have subject-predicate form but, on at least one occasion, Leibniz tries to extend this account to conditional statements by maintaining that a conditional is true if the consequent is contained in the antecedent.²¹ It is not entirely clear how to construe this. This containment relation is presumably the very thing that analysis is supposed to reveal. Unfortunately, what Leibniz says about analysis is extremely sketchy and metaphorical.²² Rather than speculating on these matters, I propose that we instead investigate Leibniz’s other main analysis of necessity.

In addition to analyzing necessity in terms of demonstrability by analysis, Leibniz also analyzes in terms of essentiality. Although it is less famous than the analysis in terms of infinite analysis, many commentators regard the doctrine of *per se* necessity as one of Leibniz’s most cherished and firmly held doctrines.²³ According to this account of

²⁰ *On Contingency*, A VI.iv.1650/AG 28.

²¹ C 401.

²² For a sample of the wide varieties of interpretation of Leibnizian analysis see Adams 1994, 25f; Carrero 1993.

²³ See for example, Adams 1994, 12, and Lin 2011. For a dissenting view, see Sleight’s editorial comments in Leibniz 2005, 272f.

necessity, a substance is necessarily *F* just in case it is essentially *F*.²⁴ Leibniz sometimes calls this per se necessity, and suggests that per se necessity is the most basic and familiar modal notion. That is, per se necessity is not a special variety of necessity. It is necessity in an unqualified sense.

Per se necessity is analyzed in terms of essences. What are essences for Leibniz? If the analysis of necessity in terms of essence is to succeed, Leibniz must not be interpreted as a superessentialist, according to whom all of a thing's properties are essential to it. Rather, a meaningful distinction between essence and accident must be assumed. I have argued elsewhere that essences, for Leibniz, exclude all information about other substances (see Lin 2011). The terminology of per se necessity suggests as much, and Leibniz also says that the essences of things give us no basis for a comparison with other things (Gr 289). If a substance contained information about other substances, it is difficult to see how they could fail to be a basis for comparing things.

Now Leibniz often speaks as though the relata of causation are substances. If this so, then we should conclude that the causal relation is not per se necessary, because causation relates substances, and the essence of a substance doesn't point to any substances outside of it. But remember that Leibniz thinks that all genuine causation takes place within a substance. Substances are the causes of their own future states. So the essence of a substance does not have to point outside of itself in order for a substance to be essentially (and hence necessarily) connected to its effects. Causation would be instead a relation that relates substances to themselves. What is more, Leibniz's considered view cannot be that the relata of causation are substances *tout court*. He often says that perceptions are involved in causation. Perceptions are not substances, but rather qualities or states of a substance. Moreover, substances are causes in virtue of their primitive active power. Leibniz writes: "Perception is the operation proper to the soul, and the nexus

24 A VI.iii.28; Leibniz 2005, 55.

of perceptions, according to which subsequent ones are derived from the preceding ones" (GP 2:372/L 599). It would probably be more accurate to say that, for Leibniz, the relata of causation are substances in so far as they have certain essences and possess certain perceptions. Another way of putting this would be to say that the relata of causation are modes of a substance or substances insofar as they are a certain way (have a certain essence and have certain perceptions). Since the causal relation only relates modes of a substance to modes of the same substance, all true causal statements will have the form x insofar as it is F causes x insofar as it is G . The question of the necessity of such causal statements will be determined by whether or not it is essential to x that insofar as it is F it causes itself insofar as it is G .

I think that we can see that, for Leibniz, if a substance insofar as it is F causes itself insofar as it is G , then it does so essentially. This is entailed by Leibniz's conception of essence or nature as primitive active force, that is, as the ultimate explanation of why a substance undergoes the changes that it does. Explaining why a substance insofar as it is F becomes a substance insofar as it is G is the very role for a rehabilitated notion of substantial form that Leibniz thinks is so indispensable. So, on Leibniz's account of *per se* necessity, the causal relation will be an absolutely or logically necessary connection.

In the previous section, we saw that Spinoza denies that God has free will. This denial both allows him to resist the conclusion that causes do not absolutely necessitate their effects and stems from his commitment to the PSR. It is worth noting that Leibniz's analysis of necessity in terms of essence allows him to hold the PSR while still maintaining that God and other rational creatures have free will. Leibniz holds that free action has three conditions: (1) contingency, (2) intelligence, and (3) spontaneity (T 173). An action is spontaneous just in case it has its causal source from within the agent. A free agent is not compelled by external forces. An action is intelligent just in case the agent has considered possible alternatives and selected the actual action on account of judging that it is the best. Of course, an

agent cannot consider alternative possibilities unless there *are* alternative possibilities. And so intelligence is impossible without contingency. Contingency is needed to secure alternatives over which the agent can deliberate. Suppose that Brutus freely murders Caesar. Brutus freely murders Caesar only if he deliberates over alternative actions and selects murdering Caesar from those alternatives on account of judging it to be the best alternative. So, that Brutus murders Caesar must not be necessary. That is, according to the *per se* possibility account of modality, Brutus must not essentially murder Caesar. But this is compatible with a state of Brutus, say the state that is the output of his deliberations, necessitating that Brutus murders Caesar. That is, it might be that Brutus essentially murders Caesar on the condition that he is in that state, although Brutus does not essentially murder Caesar.

To be sure, Leibniz often says that reasons incline without necessitating and that the free acts of a free agent are only morally necessary (DM 13), but I believe that such locutions as “inclines without necessitating” and “moral necessity” are ways that Leibniz talks about states that are the outcome of intelligent deliberation.²⁵ Such states are merely contingent because they are not essential to the substance in which they inhere, but they are hypothetically necessary given the antecedent states of the substance.²⁶

²⁵ See Adams 2005.

²⁶ A complication is introduced by the fact that Leibniz accepts some version of divine concurrence according to which both God and creatures are causally responsible for what happens in the natural world. The concurrentist denies that this shared responsibility can be understood either as overdetermination or as partial causation. The concurrentist denies overdetermination because if God withdrew his concurrence, the creatures would not succeed in bringing about changes. The concurrentist denies partial causation because God is causally sufficient all by himself. The mystery is what causal role remains for creatures? It would appear that there is nothing left over for them to do. Although there can be little doubt that Leibniz was committed to concurrentism, there is a great deal of controversy among commentators over the content of Leibniz's concurrentism, whether or not it is a coherent doctrine, and whether or not it creates difficulties for his rejection of occasionalism. I will not try to address these interpretative difficulties here. Rather, I will follow the example of Leibniz himself, who generally relegates discussions of divine concurrence to theological and moral contexts. When he discusses causation in the context of purely metaphysical or natural contexts, he generally neglects the topic of divine concurrence. I will do the same.

Was Leibniz aware that his views on causation and modality entail that causal necessity is absolute? There is no direct textual evidence that he was, but I believe that there is some indirect evidence. Leibniz's objection to Malebranche's occasionalism is that it makes God perform too many miracles. What is interesting about this objection given our present concern is that it never occurs to Leibniz to challenge the most substantial premise of the occasionalist's argument: that if x causes y , then it is inconceivable that x exists or occurs and that y does not exist or occurs. That is, Leibniz never challenges the occasionalist's assumption that the causal relation is absolutely or logically necessary. I am aware of only one text where Leibniz discusses Malebranche's argument for occasionalism from the lack of a necessary connection between finite things.²⁷ There he calls that argument the strongest argument for occasionalism and does not directly question the requirement that causes absolutely necessitate their effects. I think that the combination of the systematic grounds that commit Leibniz to the thesis together with his reluctance to criticize Malebranche for holding it amount to compelling evidence that Leibniz was aware of and accepted the commitment on some level.

We have seen that Leibniz is committed to holding that causal connections are absolutely or logically necessary. Can Leibniz respond to the kind of pressures that have led many philosophers to deny that causal connections are absolutely necessary? Recall that many contemporary philosophers deny the absolute necessity of the causal relation because they endorse DEPENDENCE, PROBABILISTIC CAUSATION, or CONTINGENT LAWS. And many medieval philosophers deny the absolute necessity of the causal relation because they believe MIRACLES.

Let us first consider what Leibniz would make of DEPENDENCE. In one sense, causal relations, according to Leibniz, do not depend upon background conditions. Nothing external to the substance makes any difference to evolution of the substance. If background conditions are

²⁷ See Robinet 1955, 412.

factors external to the cause upon which the causal relation depends, then there are no background conditions in Leibniz's world, because nothing outside of a substance can influence it. Of course, individual modes of a substance may have other modes of the same substance as conditions for their causal efficacy. A perception as if of the match being struck may only cause a perception as if of the match igniting on the condition of a perception as if of oxygen in the atmosphere. But Leibniz often speaks of the *relata* of the causal relation as total states of a substance. He says things like, "the present state of each substance is a natural result [*consequence*] of its preceding state" (GP 4:521). What is "*the state*" of a substance? Presumably it is its total state. So the cause of the state that includes a representation of a match igniting is a state that includes a representation as if of a match being struck and a representation as if of oxygen in the immediate atmosphere, etc. So the perception of the striking of the match is a partial cause that only produces its effect in conjunction with other partial causes such as the presence of oxygen. In this, Leibniz resembles Spinoza. And, presumably, he is attracted to the framework of partial and total causes by his commitment to the PSR.

All of the other considerations that push toward a denial of the absolute necessity of causal connections pertain to the laws of nature. We will have to inquire into whether or not Leibniz holds that the laws are deterministic and necessary and, if he does, whether or not he has good reasons for this opinion. The issue of miracles also relates to the laws of nature. If miracles can suppress the natural causal power of created things then the laws of nature have exceptions. If they have exceptions, then they are neither deterministic nor necessary.

Let's start with MIRACLES because, for many reasons, this is the most pressing issue for Leibniz and his response to it will, to some extent, control his responses to PROBABILISTIC CAUSATION and CONTINGENT LAWS. Christian orthodoxy requires miracles, and Leibniz (unlike Spinoza) aspires to such orthodoxy. Indeed, Leibniz affirms that "God can exempt creatures from the laws that he prescribed for them,

and produce in them that which their nature does not bear by performing a miracle" (T₃). How can this be consistent with Leibniz's per se possibility account of modality, according to which causal connections are absolutely necessary? The existence of miracles also bears on the issue of the modal status of the laws. If there are miraculous exceptions to the laws, then the laws are not necessary. Indeed, they are not even true universal generalizations. But if they are not necessary, then how can the causal connections that they subsume be necessary? In order to answer this question, we must look more closely at Leibniz's conception of laws.

Leibniz distinguishes between two types of law: "the universal law of the general order" and "subordinate maxims." The universal law of the general order is exceptionless. Even miracles, Leibniz explicitly affirms, conform to it. The universal law of the general order, however, is beyond the comprehension of any finite mind. The subordinate maxims express regularities in nature that are comprehensible to finite minds, but they admit of exceptions. For Leibniz, the subordinate maxims are laws of nature. Even though miracles conform to the universal law of the general order, they are violations of the subordinate maxims. Since the subordinate maxims are the laws of nature, in this sense, miracles are supernatural.

Leibniz relates substantial form or primitive active force to law. As Leibniz writes to De Volder, primitive forces are "internal tendencies of simple substances, by which according to a certain law of their nature they pass from perception to perception" (GP 2:275/AG 181). Moreover, the primitive force is not just governed by laws, it may even be identified with them: "the primitive force is as it were the law of the series" of successive perceptual states (GP 2:262/L 533).

The important question for our purposes is, does Leibniz identify the law of the series with the universal law of the general order or with the subordinate maxims? If he identifies the law of the series with the universal law of the general order, then, since they conform to the universal law, miracles will be produced by the primitive active force of the substances

in which they inhere. Thus, even miracles would be necessitated by the states of the substance which precede them, although the law that subsumes them will be incomprehensible to a finite mind. If Leibniz identifies the law of the series with the subordinate maxims, then, since they violate the subordinate maxims, miracles will not be produced by the primitive active force of the substance in which they inhere.

There is some evidence that suggests that Leibniz identifies primitive active force with the subordinate maxims. For example, he claims that “strictly speaking God works a miracle when he does a thing that surpasses the forces that he has given to creatures and conserves in them” (L 93). Since Leibniz believes that God performs miracles, he must also believe that some things surpass the created forces possessed by creatures. Every substance expresses everything that happens. So, if God performs a miracle, then some states of every creature are not produced by the forces contained in them. How can primitive active force produce every state of a creature if some of the creature’s states are miraculous?

Robert Adams has persuasively argued that Leibniz often expresses himself in a misleading fashion when it comes to miracles, and that by “forces” and “powers” and “nature” Leibniz means, in the context of discussions of miracles, only a portion of a creature’s primitive active force.²⁸ Part of Adams’ case rests on the following text:

If we include in our nature everything that it expresses, nothing is supernatural to it, for it extends to everything, since an effect always expresses its cause and God is the true cause of substances. But as that which our nature expresses more perfectly belongs to it in a special way, since it is in that that its power consists, and since [its power] is limited, as I have just explained, there are plenty of things that surpass the forces of our nature, and even those of all limited natures. Consequently, in order to speak more clearly, I say that

²⁸ Adams 1994, 89–94.

miracles and extraordinary concurrences of God have this peculiarity, that they cannot be foreseen by reasoning of any created mind, however enlightened it might be, because the distinct comprehension of the general order surpasses them all.

The account of power and activity that Leibniz is here alluding to is the one that he develops in order to “reconcile the language of metaphysics with practice,” and it is an account of quasi-causation or the appearance of causation.²⁹ Consequently, it is also an account of quasi-action and quasi-power. Leibniz sometimes spells out the view in epistemic terms. He writes that a substance is “active insofar what is distinctly known in it serves to give a reason for what happens in another, and passive insofar as the reason for what happens in it is found in what is distinctly known in another” (Mon. 52). So a substance’s power or force, in this sense, is a function of what is distinctly known in it. This is surely a relative notion. God knows everything distinctly. Only in relation to finite minds are some things more distinctly known than others. This suggests that what is in a substance’s power is relative to a mind. What is in a substance’s power is what a finite mind can infer about the substance’s future states from what it can understand of the substance. This clearly relates the notion of power or force under discussion here to the subordinate maxims or laws of nature that finite minds can grasp but that have exceptions. A miracle is something that cannot be inferred from the nature of any finite substance. A miracle is thus something for which there is no explanation simple enough for a finite mind to grasp.

On this reading, the primitive active force of a substance is causally responsible for all of its states. Finite minds, however, cannot grasp

29 Due to space limitations, I have not been able to discuss Leibniz’s theory of the preestablished harmony in this chapter. On that theory, distinct created substances never causally interact. Instead, the appearance of interaction results from the fact that God endows each created substance with a primitive active force that is preprogrammed to harmonize with the primitive active force of every other created substance so that the appearance of interaction obtains.

how the primitive active force is responsible. At best, finite minds can glean the subordinate maxims that describe the evolution of the substance, but these maxims do not fully capture the causal powers of substances. This is why there are exceptions to the subordinate maxims, including miraculous ones. Miracles thus do not provide any reason to think that causal connections are not absolutely necessary. If the striking of a match does not ignite it due to God's miraculous intervention, that just means that the subordinate maxims failed to determine the match's state on this occasion. The universal law of the general order has not been violated, and the primitive active force of the substances involved has not been suppressed.

Let us now consider **PROBABILISTIC CAUSATION**. Could the laws encoded in primitive active force be probabilistic? No. This is ruled out by Leibniz's commitment to the PSR. Just like Spinoza, Leibniz thinks that every truth has a sufficient cause or reason. Moreover, as Don Rutherford has argued, Leibniz is committed to the claim that everything that exists or happens has a sufficient reason in the natural order.³⁰ Presumably, the sufficient reasons for natural effects are their causes. So, by the PSR, their causes must be sufficient for them. In other words, causes absolutely necessitate their effects.

Let us now consider **CONTINGENT LAWS**. As we saw earlier, Leibniz distinguishes between two kinds of law: the universal law of the general order and subordinate maxims, which Leibniz identifies with the laws of nature. We have also seen that there are good reasons to suppose that Leibniz thinks that the law that determines causal relations is the universal law of the general order and not the subordinate maxims or laws of nature. The subordinate maxims do not really determine causal relations. They merely provide simple explanations such that finite minds can grasp. The true engine of change in the world is

³⁰ Rutherford 1992. Rutherford thinks that what he calls the Principle of Intelligibility, that every thing in nature has a natural cause is stronger than the PSR. This is obviously correct, but I think that its place in Leibniz's system derives from the PSR in conjunction with assumptions about the divine nature.

the universal law of the general order or, what is the same thing, the primitive active force of substances.

The universal law of the general order could have been different. Since the universal law of the general order is the law of the series or the primitive active force of substances, if there had been different substances then there would likely have been different laws.³¹ But what is impossible is that there are all the same substances but different laws.³² The laws, as Leibniz understands them, are not, as some contemporary philosophers are inclined to think of them, independent of the substances which they govern. They cannot be varied independently of the substances. If the laws were different, then the substances would have been different. This being so, the contingency of the laws does not threaten the absolute necessity of causal connections. It is not true that if the laws had been different, then the striking of the match would not have caused its ignition. There is no possible world in which the relevant laws are different and yet the match is still struck. No world in which the relevant laws are different includes the match in question.

3. CONCLUSION

We have looked at Spinoza and Leibniz's commitment to the claim that causal connections are absolutely necessary. We have also looked at the reasons that might have motivated these philosophers to hold this opinion. In the case of Leibniz, we saw that this opinion was entailed by larger systematic commitments. In the case of Spinoza, although he explicitly endorses the absolute necessity of causal relations, larger systematic considerations that support it are difficult to identify. The closest we came to deriving it from one of Spinoza's most basic philosophical

³¹ If the universal law of the general order supervenes on the primitive active force of substances, then it is possible that the substances differ without the laws differing due to the possibility that the general law might be multiply realizable. Whether or not this is the case will depend on details that we are not in a position to know.

³² See Adams 1994, 80.

commitments was the argument that we considered from the PSR. But Spinoza never offers such an argument, and so any such interpretation remains speculative. This is, of itself, disappointing, but my results have been disappointing in other respects as well. Earlier we noted that many early modern philosophers believe that causal connections are absolutely necessary, but remarked that it is mysterious that this belief is so widespread. My findings in this chapter do little to solve this mystery. Perhaps Spinoza was led by his commitment to the PSR to believe that causal connections are absolutely necessary, but Hobbes, Descartes, and Malebranche do not share Spinoza's enthusiasm for the PSR and so, even if such a consideration did motivate Spinoza, it does not explain the prevalence of this conception of causation in the seventeenth century. And we saw that Leibniz was committed to the absolute necessity of causal connections by his rehabilitation of substantial form as primitive active force and his *per se* possibility analysis of necessity. But these doctrines are innovations introduced by Leibniz, not common currency in the early modern period. As such they shed little light on this question. The larger mystery remains unsolved.³³

ABBREVIATIONS

For Leibniz:

A = Leibniz 1950–, cited by series, volume and page

AG = Leibniz 1989

C = Leibniz 1961

GP = Leibniz 1875–90, cited by volume and page

GR = Leibniz 1948

L = Leibniz 1969

T = Leibniz 1985

WF = Leibniz 1997

³³ I am grateful to John Morrison, Tad Schmaltz, and the Modern Philosophy Research Group at the University of Toronto for many helpful comments on this chapter.

For Spinoza:

CWS = Spinoza 1985

E = *Ethica* (*Ethics*)

G = Spinoza 1925, cited by volume and page

KV = *Korte Verhandeling* (*Short Treatise*)

TdIE = *Tractatus de Intellectus Emendatione* (*Treatise on the Emendation of the Intellect*)

TTP = *Tractatus Theologico-Politicus* (*Theological-Political Treatise*),
in Spinoza 2001

For Others:

AT = Descartes 1964–74

CSM = Descartes 1984–85

LO = Malebranche 1980

OCM = Malebranche 1958–84