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On the Significance of Formal Causes in Spinoza's Metaphysics

DOI 10.1515/agph-2015-0008

Abstract: The paper argues for a formal-causal account of Spinoza's metaphysics. Its basic claim is that neither relations of ideas alone nor efficient causality – especially if interpreted “mechanistically” – articulate the basic sense of the Spinozistic ‘cause’. Instead it is formal causality, as understood by Descartes and other 17th-century mathematicians on the basis of Aristotle's *Posterior Analytics*, which fits best both with the textual evidence and with the more general conceptual constraints of Spinoza's metaphysics. Building on the work of Carraud and Viljanen, the paper develops a more precise concept of formal causality and a systematic formal-causal account of Spinoza's metaphysics. It gives this account footing in new arguments, shows its explanatory superiority to rival interpretations and connects it to other Spinozistic doctrines.

1 Introduction

Margaret Wilson once noted the following paradox: although the notion of causality is crucial for 17th-century metaphysicians, few of them say much about how they understand it. Spinoza, she added, is a “case in point. Most of the [...] characteristic features of his system [...] are all firmly centered on notions of causal order and dependence. Yet Spinoza says very little to elucidate directly the concept or concepts of causality he relies on.”¹

The aim of this paper is to offer an (admittedly speculative) answer to Wilson's question – the sort of detailed account of causality and causal dependence that Spinoza himself allegedly fails to provide. More specifically, the aim of the paper is to develop and defend a *formal*-causal interpretation of Spinozistic causality. My main thesis is that what Spinoza himself most often refers to simply as “*causa*” is what the philosophical tradition of his time would have recognized as

1 Wilson 1999, 141.

“*formal*” causality. I have in mind here specifically formal causality as this term was understood by Descartes and other 17th-century philosophers and mathematicians, who, in turn, were taking their cue from Aristotle's *Posterior Analytics*.

To give a first, rough definition of this conception of a formal-causal relation, a formal causal relation is the relation between the essence of a thing and the necessary properties inferable from that essence. Causality so understood thus has to do first and foremost with the essential natures of things, and their implications, rather than with bodies entering into collisions according to certain laws.² In this paper I wish to show that it is this model of causality that fits best both with the textual evidence and with Spinoza's other metaphysical commitments. I will also argue that Spinoza's views about explanation and intelligibility are also best approached through the lens of this formal-causal model.

To be sure, most scholars today hold that formal causes, like the much-maligned Aristotelian substantial forms, have no place in Spinoza's philosophy,³ and indeed in early modern thought more generally.⁴ Alternatively, formal causality gets reduced to purely “materialistic”, or “corpuscular,” causality.⁵ In my view, both of these verdicts misrepresent the fate of formal causality in early modern philosophy, underestimating its continuing importance.

Bucking this general trend, formal-causal readings of Spinoza's metaphysics were recently proposed by Viljanen and Carraud, resurrecting a line of interpretation present already in Gueroult's and Joachim's commentaries.⁶ Many other scholars have recognized that Spinozistic causation is fundamentally a matter of entailment of effects by essences, without reaching for the vocabulary of “formal” causality.⁷ And what follows is very much indebted to these earlier accounts. But I also wish to build on them in several ways: first, by offering an alternative account of how Spinoza understands the nature and scope of formal causality, one that rejects Carraud's and Gueroult's purely conceptual glosses of this type of causality, as well as Viljanen's restricted interpretation of its scope. Second, I want to reassess the arguments already given for formal-causal readings of Spinoza's metaphysics and to put forward new arguments. Third, I want to systematically relate formal causality to other Spinozistic doctrines. Finally, I want to demon-

² Cf. Viljanen 2008, 428.

³ See, e.g., Curley 1969, 164 n. 18; Melamed 2005, 166; Wolfson 1934, 303, 422; Beiser 2005, 67.

⁴ See, e.g., Ariew and Watkins 2000, vii; Carriero 1995, 272; Des Chene 2006, 68; Clatterbaugh 1998, 3–7.

⁵ See Pasnau 2004, 45.

⁶ Viljanen 2008; Viljanen 2011, 37–53; Carraud 2002, 295–326; Gueroult 1968, 248; Joachim 1901, 12.

⁷ See, e.g., Garrett 2002, 144, Lin 2006, 339.

strate the explanatory superiority of a formal-causal reading over interpretations on which it is either the logical relations of ideas, or efficient causality interpreted “mechanistically”, that best illuminate the meaning of Spinozistic causality.

Let me say a few words about the structure of the paper. In Section 2, I identify some of the problems faced by now-dominant accounts of Spinozistic causality. In Section 3, I outline the Cartesian conception of a formal cause. In Section 4, I sketch the main outlines of a formal-causal account of Spinoza’s metaphysics. In Section 5, I explain its principal advantages over rival interpretations, and show how it can accommodate both a mechanistic physics and “efficient” causality. Finally, in Section 6, I offer textual evidence for the proposed account, and fill in the details of that account.

2 Mechanism, Logicism and Idealism

Spinoza is quite explicit that causation is a unified and univocal phenomenon: in his view there is, at bottom, a single answer to the question of what it means to “cause” something. As he puts it, God – the universal first cause – “must be called the cause of all things in the same sense [eo sensu] in which he is called the cause of himself” (E1p25s); “the laws and rules of nature, according to which all things happen, and change from one form to another, are always and everywhere the same” (E3pref; II/138). This univocity doesn’t mean that there may not be different subtypes of causal relations, or distinct aspects to causality. But it does mean that all these types and aspects can ultimately be shown to be determinations of one fundamental sort of causal relation.

The question then is: what exactly is the nature of this causal relation? Current scholarship offers three main answers to this question, which I will label *mechanistic*, *logicising*, and *idealist* interpretations respectively. In this section I will summarize their principal claims and outline some of the difficulties they face. As we shall see, all three interpretations are arguably less anchored textually and explanatorily inferior to a formal-causal account. Here I will focus on their explanatory shortcomings, and return to textual ones in the last section.

(2.1) I will start with the mechanistic reading, arguably the dominant account of Spinoza’s causal metaphysics in the second half of the 20th century. Its proponents regard Spinoza as a representative of the so-called “mechanistic” turn in early modern philosophy – of the conceptual revolution that led to the abandoning in natural philosophy of explanations formulated in terms of “final causes” and “substantial forms”, and to the replacing of such accounts by accounts articu-

lated in terms of the lawful interactions of bodies determined with respect to size, arrangement and motion alone.⁸ Many readers explicitly apply the label “mechanist” to Spinoza.⁹ But even those who do not often regard the new, mechanistic physics as the most formidable influence on Spinoza's conception of causality.¹⁰ Such readings are encouraged, in the first place, by the growing sympathy toward efficient causality among late medieval and early modern thinkers generally.¹¹ (Even Descartes regarded the efficient cause as paradigmatic). Moreover, Spinoza himself certainly plays the role of a mechanistic philosopher rather well in the *Ethics* if one chooses to put a lot of weight on its Physical Digression (which distinguishes bodies through motion and rest alone [II/97–103]);¹² on Spinoza's repeated references to *causa efficiens* – not least his declaration that God is an “efficient” cause (E1p16c1); or finally on his detailed engagement with Boyle's *Certain Physiological Experiments* in his letters (Ep. 6, 13). Mechanistic readings are also encouraged by the fact that Spinoza counts such allegedly staunch mechanists as Descartes and Hobbes among his intellectual influences.

Such textual and historical considerations have led many scholars to conclude that it is efficient causality that represents the most fundamental kind of causality in Spinoza's philosophy, and perhaps even the only kind of causality he admits.¹³ Many of those who subscribe to this view do not specify further how the notion of a *causa efficiens* is to be understood in Spinoza's framework. But often the answer to this question is sought in his rejection of teleology, on the assumption that this rejection leaves only one option open to Spinoza: a purely

8 For a classic expression of the mechanist view see Boyle's claim that “there is in the body [...] nothing of real and physical but the size, shape, and motion and rest, of its component particles” (*Origin of Forms and Qualities*, 31). Cf. Oldenburg's letter to Spinoza (Ep.3; IV/12). Some who bucked purely mechanistic interpretations of Spinoza have argued that in his metaphysics mechanistic efficient causes coexist with final causes (see, e.g., Garrett 1999; Lin 2006). Emphasis on the turn toward mechanism in early modern philosophy seems to me to impoverish the causal spectrum in fact recognized by 17th-century metaphysicians. In addition to Spinoza, consider Descartes' retention of both final and (as we shall see in more detail below) formal causation; Leibniz' belief that things must ultimately be explained by reference to divine ends; or finally the Cambridge Platonists' view of matter as infused with spirit.

9 See, e.g., Bennett 1984, §§ 51.2 and 53.3; Curley 1988, 33; Donagan 1989, 62f.; Gabbey 1996, 179; Garrett 1999, 323; Lin 2006, 329, 347; Beiser 2005, 91; Israel 2001, 243, 246; Manning 2002, 195; Wolfson 1934, 89, 435.

10 See, e.g., Carriero 2005, 121, 138; 1991, 49, 59; Curley 1988, 43–6; Donagan 1989, 68; Garrett 1996, 307; Israel 2001, 246.

11 AT 7.240–2. Cf. Suárez DM 12.3. On this historical trend, see, e.g., Schmaltz 2008, 24; Jolley 2006, 115; Pasnau 2004, 35.

12 Cf., e.g., Garrett 1999, 323; Lin 2006, 329.

13 See, e.g., Carriero 1991; Curley 1969, 164 n. 18; Nadler 2006, 78.

mechanistic universe. It is in mechanistic terms then that Spinozistic “efficient” causality is understood.¹⁴

Yet the above case for a mechanistic reading of Spinoza is far from conclusive, for a number of reasons. As Carraud notes, Descartes provides Spinoza equally with a prototype of formal causality and, on purely textual grounds, it is doubtful that Spinoza intends “efficient” causality to subsume all causal relations. For the first time this term appears in the treatise, in E1p16c1, we are already halfway through Spinoza’s exposition of his fundamental metaphysical principles. Moreover, E1p16c1 is only one of three, formally equivalent corollaries, the other two of which describe God’s causal status in terms of traditional Scholastic categories.¹⁵ Now, I don’t think that these types of textual doubts, emphasized by Carraud, are decisive. (For one, Spinoza sometimes later clarifies earlier claims in nontrivial ways, as in the case of the multiple substances entertained in E1p2 and ruled out in E1p14.) But they do show that the importance and meaning of “efficient” causality in Spinoza’s philosophy is at least open to debate.

More importantly, it’s not obvious what substantive conclusions we can draw from Spinoza’s use of a particular term, such as *causa efficiens*. For pointing out that Spinoza relies on a certain locution does not answer the question – the question this paper wishes to address – of how he understands the nature of “efficient” causality and of “causality” generally. Given the evolution in meaning that “efficient” causes have undergone since the initial systematization of their Greek equivalents by Aristotle, as well as Spinoza’s well-known penchant for reinterpreting received philosophical vocabulary, we are less than ever in the position to rest on untested assumptions or to import other philosophers’ definitions.

An advocate of the mechanistic reading might retort here that Spinoza *does* make clear what he means by “efficient” causality, and that the mechanistic meaning of this term – causality as the lawful determination to motion or rest by bodies determined in terms of size, shape, and motion alone – is spelled out in the Physical Digression. Again, however, matters are not this clear-cut. The advertised task of the Digression is not to explain the nature of causality but to explain the nature of minds by explaining the nature of their intentional objects, or bodies (E2p13s; II/97). The term *causa efficiens* never appears in the Digres-

¹⁴ See, e.g., Joachim 1901, 12, 53; Carriero 1991, 59; Bennett 1984, § 51.2. Cf. Viljanen 2008, 415, 421; Viljanen 2011, 36.

¹⁵ Carraud 2002, 295–317. Could efficient causation have been implicitly introduced prior to E1p16c1? It is not clear what proposition could play this role, especially given a plausible case for a formal-causal reading of E1def1. “Efficient” causes also are not mentioned at all in TIE or TP; in TTP only once (3.12); in CM, three times (2.10).

sion.¹⁶ So little about this part of the *Ethics* suggests that it was intended as Spinoza's fundamental account of causation. More importantly, the properties that Spinoza does elsewhere attribute to "efficient" causes – such as being intelligible, emanative, and immanent (Ep. 60, E1p16c1; KV1.3; I/35) – are not properties typically associated with mechanism.¹⁷ Finally, Spinoza's explicit comments about Boyle's version of mechanism suggest that Spinoza thought it falls short of truly philosophical standards of explanation:

[Boyle] tries to show that all the tangible qualities depend only on motion, shape, and the remaining mechanical affections. Since he does not present these demonstrations as Mathematical, it is not necessary to examine whether they are completely convincing (Ep. 6; IV/25).

As Spinoza later elaborates, what would be required for a genuine demonstration is a demonstration of what pertains to the *essences* of things. Thus, in discussing niter, Boyle should have shown "that salt is not an impurity but is absolutely necessary to constitute the essence of Niter, without which Niter could not be conceived" (Ep. 18; IV/64).¹⁸

However, perhaps the biggest obstacle faced by mechanistic readings of Spinoza is that they are not sufficiently *general* to account for all cases of causality in his metaphysics. As is well known, Spinozistic being comes in infinite kinds, or, to use Spinoza's terminology, it is expressed through infinite "attributes" (E1def6). As a consequence, Spinozistic causal relations cannot be reduced to the production of motion and rest: what happens to bodies is only one way that causal relations manifest themselves in nature. But mechanism is by definition an essentially physical model of causality. (Spinoza himself uses the term "mechanism" and its cognates only in his discussions of bodies.¹⁹) Hence as it stands mechanism cannot account for causality under all the attributes, including thought. Yet such generality is presumably a basic interpretative desideratum of any account of Spinozistic causality.

This is not to say, of course, that it would be impossible to extend extant mechanistic models to relations of ideas, especially given that according to Spinoza the "connection of causes" in nature is the same under all the attributes

¹⁶ Indeed the word *causa* is virtually absent from the Digression; instead Spinoza talks there about bodies "determining", "constraining", "forcing", "disposing", "composing" and "generating" each other.

¹⁷ Thanks to an anonymous reviewer for this point.

¹⁸ For this characterization of essence, cf. E2def2.

¹⁹ See E1app (II/81); KV 1.6 (I/43); CM 2.6 (I/259); Ep. 6 (IV/25); Ep. 13 (IV/66).

(E2p7s; II/90). One could conclude, for example, that proponents of mechanistic readings of Spinozistic causality must be implicitly committing him to “mechanistic” relations between ideas, relations that would be brute and external. If mechanistic accounts of Spinozistic causality indeed entail that Spinozistic relations of ideas amount to this kind of ‘physics’ of thought, proponents of mechanism arguably preserve their interpretation of Spinozistic *causa* only at the cost of preventing Spinozistic relations of ideas from amounting to genuine thinking.²⁰ Of course, one can decide to bite this particular bullet, or respond that we are witnessing here simply the shortcomings of *Spinoza’s* conception of thought. (Indeed, already Leibniz complained that Spinoza deprives God of genuine rationality, replacing it with brute power).²¹ But at least we must acknowledge that mechanistic readings carry this interpretative cost; and that to this extent we have reason to look for other accounts of Spinozistic causality.

(2.2) Let me turn to another highly influential account of Spinozistic causality, one that I will call the “logicising” reading. This reading has been endorsed by numerous scholars.²² Its central claim is that Spinoza establishes some sort of isomorphism, correlation, or identity between causal relations and relations of *purely logical* entailment or inference. The reading’s popularity is understandable. It fits well with Spinoza’s claim that the “order and connection” of causes is “one and the same” as that of “ideas” (E2p7); with his identification of “causes” and “reasons” (E1p11altd1); with his geometric models of causality, according to which things depend on God the way that a triangle’s properties depend on its essence (e.g. E1p17s); and finally with his reliance on a single verb – to “follow [*sequi*]” – to describe both the dependence of propositions within his own arguments, and causal dependence within nature: it seems that things in Spinoza’s nature causally “follow” from substance in the same way as propositions inferentially “follow” from one another in a demonstration.²³

Most logicising interpretations stop at simply asserting the existence of a correspondence or identity of causal relations and relations of entailment, without saying much about how precisely to understand this correspondence or identity,

20 On the relation between logic and psychology in Spinoza’s philosophy see Bennett 1984, § 14, and Hübner 2014. For the argument that the representative content of Spinozistic ideas cannot be causally efficacious, see Bennett 1984, § 51.5

21 Leibniz 1996, 1.1. See also *Comments on Spinoza’s Philosophy*, in Leibniz, 1989, 272–80.

22 See, e.g., Bennett 1984, § 8.3; Curley 1969, 45 f.; Garrett 1991, 194; Koistinen 2003, 286; Allison 1987, 71; Joachim 1901, 12, 230 f.; Yovel 1991b, 87, 93.

23 See, e.g., Curley 1969, 45 f.; Garrett 1991, 193 f.; Mason 1997, 59, for appeals to these.

or the entailment itself.²⁴ In their defense, we can point to the scarcity of textual evidence. For a rudimentary difficulty facing such readings is that Spinoza has almost nothing to say about logic in general, or about the nature of inference in particular.²⁵ The little he does say suggests that he did not think that logic is concerned with being *qua* known. Instead, like many other 17th-century thinkers, Spinoza views logic as a normative, therapeutic “art” akin to medicine. Logic trains memory and imagination.²⁶ Logic so understood belongs to the “first” kind of knowledge, “the only cause of falsity” in our ideas (E2p41). Presumably then logical relations of ideas are far from being capable of reproducing the actual causal structure of nature.

Of course, proponents of the logicising approach are not beholden to understand “logic” as Spinoza did. But their problems do not end here. Most damaging is the fact – first pointed out by Garrett – that classical models of inference fail to reproduce only those relations of causal dependence that Spinoza accepts in his metaphysics.²⁷ The difficulty is that if we take the “following” relations linking causes and effects to function along the lines of either material or strict implication, we end up attributing to Spinoza causal views he clearly cannot hold. Take for example the proposition “God exists”. For Spinoza this is a necessarily true proposition. As a true proposition, it is materially implied by any proposition; as a necessary proposition, it is strictly implied by any proposition. So if either of these models of inference accurately represented relations of causal dependence, they would predict that God’s existence follows from any number of trivial features of *natura naturata*. But for Spinoza it is of course a fundamental tenet that substance is *causa sui*: its existence follows from its essence alone.

Della Rocca puts the resulting impasse faced by logicising readings as follows:

for Spinoza, [e]ffects depend on and are explained by their causes in a way in which the fact that $2 + 2 = 4$ does not depend on or is not conceived through the fact that Bush is president. But exactly how to characterize this notion of dependence is, of course, far from clear, and Spinoza does not give us the resources to do so.²⁸

In the face of this impasse, Garrett himself proposes that we look to relevance logic to model Spinozistic causal relations, with the relevance condition being

²⁴ Cf. Wilson 1999, 141. Similarly to Melamed 2009, I think the question of the relation of causal relations to relations of ideas (E2p7) should be kept separate from the question of identity of modes under different attributes (E2p7s).

²⁵ Cf. Donagan 1989, 74 f., Bennett 1984, § 14.2; § 27.5.

²⁶ E5pref (II/277); CM 1 (I/233).

²⁷ Garrett 1991, 194. Garrett’s proposal is endorsed in Della Rocca 2003, 81, 92 n. 12.

²⁸ Della Rocca 2003, 81.

“priority in the causal order of nature”.²⁹ But it’s not clear that this represents a genuine solution to the problem that Garrett identifies, rather than merely restating this problem. This is because what we are after in seeking a logical model for Spinozistic relations of causal dependence is a logical framework capable of correctly generating such relations of priority – an appropriate ordering of premises and consequences. To this extent, even Garrett’s more sophisticated version of the logicising reading does not fully account for the intelligibility of causal relations in Spinoza’s metaphysics.

I am far from being the first to criticize such readings.³⁰ However, those who have done so have not offered many positive counter-proposals of better conceptual models of Spinozistic causality. This is what I would like to do in this paper: to show that formal causality provides precisely such a model, insofar as, pace Della Rocca, it provides the “resources” necessary for an adequate logical characterization of causal relations in Spinoza’s metaphysics.

(2.3) The final account of Spinozistic causality I want to consider here is the *idealist* interpretation, as delineated by Della Rocca. Its principal claim is that Spinoza reduces causal relations to conceptual ones, under the pressure of a fundamental commitment to the Principle of Sufficient Reason (PSR). On this reading, the order of causes is the “same” as the order of ideas only in the sense that there is only one order: there is nothing that is not thought.³¹

For all its virtues, this reading is also not without shortcomings.³² On a purely textual level, it is difficult to reconcile it with Spinoza’s explicit commitment to a plurality of attributes (E1def8, E2p1f.), and in particular to the existence of an extended nature (E2p2), conceivable “through itself” (E1p10) and thus precisely *not* in terms of thought. Likewise, we may wish to object to Della Rocca’s interpretation of Spinoza’s definitions of substance and mode in the *Ethics*: treating these

²⁹ Garrett 1991, 194. Garrett’s proposal is certainly historically plausible: already medieval philosophers debated the relevance of antecedents to consequents and the paradoxes of implication (on this, see, e.g., Ashworth 1974, 13–16, 134). Garrett sketches his proposal in just a few lines, en route to a different topic, but certainly other constraints would have to be added here. This is because considerations of “priority” fail to block for example both entailments across different attributes (contrary to E1p10, E2p5–6) and the possibility of substance’s existence not being entailed by anything (contrary to the PSR).

³⁰ See, e.g., Wilson 1999, 141; Donagan 1989, 74 f.

³¹ Della Rocca 2003; Della Rocca 2008, 44 f. Della Rocca’s proposal can be seen as a version of the logicising reading; I treat it separately given its unique ontological commitments.

³² For other criticisms of Della Rocca’s reading, see, e.g., Laerke 2011 and Newlands 2012. However, I am not convinced by Laerke’s objection that thought cannot be ontologically fundamental in the way that Della Rocca proposes because all actual concepts are merely modes (Laerke 2011, 454). Thought also – and indeed more importantly – constitutes the essential nature of substance.

definitions as if they were articulated solely in terms of how these two kinds of entities are conceived,³³ either neglects or makes redundant the inherence clauses of both definitions. Furthermore, to establish his reductive thesis, Della Rocca also claims that in E1p6 Spinoza appeals to substance being conceived through itself to establish that it is self-caused.³⁴ But the fact that Spinoza demonstrates claims about causal dependency on the basis of claims about conceptual dependency does not yet show the priority of the latter in the order of being, as opposed to merely that of knowing, or of how we come to know things.³⁵ Likewise, we may also wonder about the desirability and plausibility of reducing causal power – a concept central to Spinoza's metaphysics (E1p34, E3p7) – to what entailments between ideas may “produce”. This seems to be “power” in name only: little is left here of power as efficacy, productivity, or “oomph”.³⁶ Finally, consider Della Rocca's claim that it is Spinoza's commitment to the PSR that ultimately leads to a reduction of all being to thought, on pain of leaving an unintelligible remainder.³⁷ On such a reading only reductive idealist metaphysics can ever be genuinely intelligible, and genuinely committed to the PSR. This is presumably a conclusion that at least some idealists and at least some partisans of the PSR would want to resist. To assume that only thought can be fully intelligible seems to conflate *being intelligible* (a certain relation to thought) with *being thought*. In contrast, according to Spinoza, for being to be fully intelligible is for it to exist *both* with the varied sorts of formal reality that things have as they are in nature *and* with objective reality, as adequately represented in the divine infinite intellect (E2p7c). This is not a reductive view of intelligibility.

(2.4) I do not wish to suggest that the problems plaguing these three, now-prevalent accounts of Spinozistic causality are insoluble. But they suggest that the question of Spinoza's understanding of causality should continue to be examined.

In the remainder of this paper, I want to add to the existing case for the claim that a formal-causal interpretation ought to be taken seriously as an alternative to the logicising, mechanistic and idealistic readings of Spinoza's causal metaphysics. I will do this by demonstrating this interpretation's fit with the textual evidence, and its immunity to difficulties encountered by the other three interpretations. But to do this, I must first say a little more about what a “formal” cause is.

³³ Della Rocca 2003, 81–3; Della Rocca 2008, 44.

³⁴ Della Rocca 2003, 81; Della Rocca 2008, 44. (In both texts Della Rocca misidentifies E1p6altd as E1p6c.)

³⁵ Spinoza explicitly acknowledges that the two can come apart; see, e.g., E5p31s.

³⁶ Cf. Laerke 2011, 457.

³⁷ Della Rocca 2003, 78.

3 Formal Causes “Rehabilitated”

(3.1) What, then, is a “formal” cause, for us today perhaps the most puzzling of the Aristotelian foursome? Given the long history of this notion, there is more than one answer to this question. But, as Carraud recognizes, the answer most relevant to an inquiry into Spinoza’s metaphysics is the one offered by Descartes in the Replies to the Objections to his *Meditations*.³⁸ There the discussion of formal causality is triggered by the puzzle of divine self-causation. The orthodox theological view – the view expressed by Arnauld, the author of the Fourth Set of Objections – is that to call God *causa sui* is to make the merely negative claim that God does not have a cause (AT 7, 210). Descartes disagrees. His view is that God is a cause of his own existence and of all his perfections in a positive sense, not however as an “efficient” cause, but as a “formal cause”, and reinterprets in formal-causal terms the reasoning governing ontological arguments for divine existence. He explains that to say that God is a formal *causa sui* just means that God has the “power [*potentia*]” to exist eternally insofar as his “essence [...] is such that he must always exist” (AT 7, 108 f.). But “what derives its existence from itself” in this manner “derive[s] its existence from itself as a formal cause [*causa formalis*]” (AT 7, 238). A formal cause is just “the whole essence of a thing”, or, more precisely, the “reason [*ratio*] derived [*petitam*] from [the] essence” of a thing (AT 7, 242, 236).

According to Descartes then, a formal-causal relation is first of all a relation of inference of a property from a thing’s essence, as exemplified by relation of divine essence to divine existence.³⁹ This Cartesian reduction of formal causality to the relation of essential implication suggests that adopting a metaphysics of formal causes does not necessarily imply, as one may have worried, reintroducing an ontology of substantial forms, with all their attendant commitments (for example, to prime matter). As is well known, Descartes and Spinoza, like many other early moderns, both claim to reject Aristotelian substantial forms.⁴⁰ So for

38 See also the 1642 letter to Mesland (AT 5, 546). Gilson traces Descartes’ remarks about formal causality to Eustachius à Sancto Paulo (Gilson 1912, 39). My account of Descartes’ views here will be selective and brief. I will not address the question of the relation of the Replies to other doctrines and passages in Descartes’ corpus. For a more detailed account, see, e.g., Carraud 2002, 167–293; Schmaltz 2008, 59–61.

39 Descartes’ treatment of existence as a property is famously controversial. However Descartes applies the formal-causal model to God’s causation not just of his existence but of *all* his “perfections” (i.e., positive or real properties), so the model itself does not hinge on the Cartesian ontology of existence.

40 Here I disagree with Viljanen who associates Spinozistic formal causality precisely with the causality of substantial forms. Cf., e.g., his claim that Spinoza “gestures towards the traditional view, such as the one endorsed by Suárez, according to which properties are caused by the sub-

them to nonetheless endorse the concept of formal causality, this type of causality must have become detached from the ontology of substantial forms. Indeed, in the Replies Descartes insists that his formal-causal account of self-causation simply “follow[s] the footsteps of Aristotle” in *Posterior Analytics* (AT 7, 242) – thus a work of logic, rather than of natural philosophy or metaphysics, and he refers his readers specifically to a passage where Aristotle discusses the inference of properties from the definitions of geometrical figures (PA 2.11). It is this geometrical example, rather than formal causality as the causality proper to substantial forms, that then serves as the ontological model for Descartes' formal causal interpretation of divine self-causation.

Descartes' stripped-down, mathematical, and inferential reconception of formal causality is of a piece, it seems to me, with the general early modern attitude toward Aristotelian philosophy. Concepts and doctrines inherited from Aristotelianism were often redefined and revised, rather than simply rejected. Thus Leibniz famously writes of “rehabilitating” substantial forms “in a way that would render them intelligible, and separate the use one should make of them from the abuse that has been made of them”.⁴¹ Descartes notes similarly that “[e]ssential forms explained in our fashion give manifest and mathematical reasons for natural actions” (Letter to Regius, Jan. 1642; AT 3, 506). I suggest that we treat his reinterpretation of formal causes as another such case of “rehabilitating” the Scholastic legacy.

To contemporary ears, Descartes' inferential or mathematical conception of causality may sound like a liability rather than an asset. That is, it may seem like a basic confusion of categories.⁴² But I suggest that this is only a sign of how different our notion of “causality” is from the early modern one. Seen in the light of the period, Descartes' account is in no way eccentric. As Viljanen emphasizes, and Mancosu describes in detail, a plethora of texts, mathematical and philosophical alike, shows that in the 17th century the Aristotelian tradition continued to dominate thinking about mathematics: like all “sciences”, mathematics was thought

stantial form from which they emanate” (Viljanen 2011, 42). I take Spinoza to reject substantial forms at least because he rejects the hylomorphic analysis of substance into form and matter. For Spinoza substance is the non-analyzable ontological bedrock – there are no substantial forms qua something distinct in re from substance: the “absurd[ity]” of substantial forms follows from the fact “that there is nothing in Nature but substances and their modes” (CM 1.1; I/249). See also Ep.13 (IV/64). For Descartes, see, e.g., AT 11, 25 f., AT 7, 442 f. On the complicated fate of substantial forms in his metaphysics see, e.g., Hattab 2006, Hoffmann 1986, Rozemond 2002.

⁴¹ *New System of Nature*, in Leibniz 1989, 139.

⁴² Thus Bennett writes for example that Spinoza “sometimes uses the language of causality in discussing logico-mathematical topics”, but this “does not bring into mathematics anything we would call ‘causal’ ” (Bennett 1984, § 8.3).

to deal with causal relations, and with formal-causal relations in particular.⁴³ To take a Euclidean example often cited by early moderns, on this conception of the nature of mathematics, the proposition stating that the sum of the internal angles of a triangle equals two right angles involves formal causes insofar as the triangle's essence, as given by its definition, determines qua formal cause the triangle's properties (such as the sum of its internal angles).⁴⁴

Descartes' appeal in the Replies to Aristotle's geometrical example in the *Posterior Analytics* draws precisely on this tradition. But Descartes also takes care to emphasize the *generality* of the causal model he is adopting, its applicability to "all the essences of all things" "from which any kind of knowledge can be derived" (AT 7, 242).⁴⁵ Presumably, Descartes stresses this point because his immediate objective is to apply a concept introduced in a mathematical context to a theological problem. But, as a result, he ends up with a causal model that is general at least in the sense that it can apply both to God and to mathematical objects – thus to infinite and real beings as much as to finite *entia rationis*.

(3.2) We now have a somewhat clearer picture of what Descartes understands by a "formal" cause. What still requires explanation is what pushes Descartes to admit the existence of such causes in the Replies in the first place.

Descartes is forced to this conclusion by what he perceives to be a conflict between two innate truths. The first of these truths is the Principle of Identity: "everyone knows that something cannot be [...] distinct from itself [...] [W]hat gives itself existence would have to be different from itself in so far as it receives existence; yet to be both the same thing and not the same thing – that is, something different – is a contradiction" (AT 7, 240). The second is the existence of a positive *causa sui*: "natural light" shows that God's essence positively "bestows [*dare*]" on him all his perfections, including existence (AT 7, 240). In other words, reflection on divine nature shows that there exists a cause identical to its effect. Thus, apparently contravening the Principle of Identity, God is both identical with and distinct from himself.

⁴³ See Viljanen 2008, 421 f.; Viljanen 2011, 43 f.; Mancosu 1999, 10 f. (Mancosu mentions in this context Barrow's *Lectiones Mathematicae* and Biancani's *De Mathematicarum Natura*, but neither he nor Viljanen discuss Descartes.) Cf. also Arnauld ("mathematicians [...] never give demonstrations involving efficient or final causes" [AT 7, 212]). On the mathematics of the period, see also Jessephe 2000, 204; Carriero 1991, 63 f.; Flage/Bonnen 1999, 83; Des Chene 2000, 228; Longeway 2005. (Whether or not mathematics were a genuine "science" was controversial, but this is beyond the scope of this paper.)

⁴⁴ Mancosu 1999, 14. The proposition in question is proposition I.32 in Euclid's treatise.

⁴⁵ Cf. Schmaltz 2008, 60.

Faced with this dilemma, Descartes had several options. He could have conceded that the divine *causa sui* should indeed be understood in merely negative terms, as Arnauld had proposed. Or he could have admitted that our finite intellects simply cannot dispel the appearance of contradiction created by God's self-causation, just as they cannot fathom how our freedom of the will is consistent with divine omnipotence.⁴⁶ Instead Descartes decides to give up on the universality of the Law of Non-contradiction. He concludes that this Law applies only to the creaturely realm: only creaturely causes and effects must always be "external" to, or "distinct [*diversae*]" from, their causes (AT 7, 242). And he reserves the label "efficient causation" for precisely such cases of causation involving external or really distinct relata. The Cartesian God is thus an efficient cause of every creature's existence, but not of his own.

In Descartes' case then, an inquiry into the grounds of God's existence exposes the explanatory insufficiency of a causal ontology limited to efficient (and, as we know from Descartes' other texts, final) causes. Descartes continues to treat efficient causes as the paradigmatic causes, and characterizes the nature of formal causes only by "extending" the idea of an efficient cause beyond its "strict sense" (AT 7, 239–45); nonetheless efficient causes cannot explain all causal phenomena. Multiplying causal kinds in this way may seem to us an ad hoc and ontologically profligate solution to a problem whose pressure we are moreover no longer likely to feel. But it is also clear why Descartes looks to the notion of a formal cause in particular when trying to explain the ostensibly contradictory phenomenon of divine self-causation. For if, as we have seen, formal-causal relations hold paradigmatically between the essence and the properties of one and the same thing (for example, a triangle), then such causal relations do not require really distinct relata.⁴⁷

It is worth emphasizing here that in Descartes' view formal causes differ from efficient causes *only* insofar as the former are not subject to the constraint of the non-identity of causes and effects.⁴⁸ For this lets us block another potential worry we may have about a metaphysics that takes formal causes seriously. This worry is that a formal cause reinterpreted in inferential terms, and modeled on mathematical relations, might work at most as an explanatory principle,

⁴⁶ See Pr 1, 41. However, at one point Descartes suggests that the analogy of formal causes with efficient causes is a function of the imperfection of our understanding (AT 7, 235).

⁴⁷ Formal causation thus can be seen as a kind of immanent causation (see E1p18). (Thanks to an anonymous reviewer for this point.) Cf. Carraud 2002, 309.

⁴⁸ This, writes Descartes, is the "one feature peculiar to an efficient cause, and not transferable to a formal cause" (AT 7, 241). Hence according to Descartes there is also a sense of "cause" "common" to both formal and efficient causes (AT 7, 238).

showing why a certain thing must have a certain property. But it seems to lack the kind of efficacy or “oomph“ typically associated with genuine causality.⁴⁹ To this extent formal causality seems to fare not better than the idealist gloss of Spinozistic *causa*.

The Replies show that this sort of worry is misplaced. For however his predecessors understood the nature of formal causes, according to Descartes, the sole difference between efficient and formal causal relations lies, as we have seen, in the conceptual constraints governing their relata, and more precisely, in the possibility and impossibility of these relata being identical. But this kind of difference between efficient and formal causes does not entail any curbing of productive power or efficacy. Indeed, Descartes is explicit that, as a formal cause, God is capable of every conceivable effect that an efficient cause can bring about: “his own essence is the eminent source which bestows on him whatever we can think of as being capable of being bestowed on anything by an efficient cause” (AT 7, 241). Even at moments when Descartes seems to hesitate about the propriety of using a causal vocabulary in relation to God, he never backs down from his insistence that there is in God a “positive” and “inexhaustible” “power”.⁵⁰

In short, a formal-causal relation as Descartes conceives of it not merely a conceptual relation (an inference of property from an essence), but *also* a productive relation, one that bestows existence on some effect – whether this effect be a formally-real entity (as in the case of God’s self-causation), or a merely objectively-real one (as in the case of the production of a geometrical property).⁵¹ In other words, contrary to some accounts of formal causality in Descartes and Spinoza,⁵² we must distinguish formal-causal relations from purely conceptual relations.

⁴⁹ For this view see, e.g., Gueroult 1968, 252; Laerke 2011, 457.

⁵⁰ Cf., e.g., “the phrase ‘his own cause’ [...] simply means that the inexhaustible power of God is the cause or reason for his not needing a cause. And since that inexhaustible power or immensity of the divine essence is as *positive* as can be, I said that the reason or cause why God needs no cause is a *positive* reason or cause” (AT 7, 235; emphases in the original). Cf. “theologians writing in Latin do not use the word *causa* in matters of divinity (AT 7, 237).

⁵¹ I take the “productive” aspect of formal causality to be drawing on the traditional association of causality with an influx of being (see, e.g., Avicenna, MH 6.1.2, or Suárez, DM 12.2).

There are of course important differences in the ways that *entia rationis* like a triangle and real beings like God exist or have reality, but the formal-causal effects of *entia rationis* are not nothing, despite not being “real beings”: they have the kind of reality that is proper to the way objects exist in the mind (cf. AT 7, 103).

⁵² See Carraud 2002, 282 f., 298, 313 f., 319, 324, 334; cf. also his identification of “cause” and “efficiency” (Carraud 2002, 334); Gueroult 1968, 248, 266; Joachim 1901, 12; Viljanen 2008, 424. Cf. Carriero 1991, 61 f.; Laerke 2011, 450, 457.

Given this dual nature of formal causality – as both existence-bestowing and inferential – it should perhaps be unsurprising that Descartes treats the phrase “*causa sive ratio*” as a *synonym* for “formal cause”.⁵³ That the two locutions are synonymous is clear from the fact that the Fourth Replies’ distinction between “external”, “efficient” causes of creaturely existence on the one hand, and the non-external, “formal” cause of divine existence on the other is first introduced, in the Second Replies, as a distinction between “causes” simpliciter and causes that can also be described as “reasons”. Descartes writes:

Concerning every existing thing it is possible to ask what is the cause of its existence. This question may even be asked concerning God, not because he needs any cause in order to exist, but because the immensity of his nature is the cause or reason why he needs no cause in order to exist. (Ax1, AT 7, 164)

(3.3) With this last piece of Descartes’ picture on the table, we are now in a position to take a look at Spinoza. In the Section 4, I will summarize the view I wish to attribute to him; in Section 5, I will offer textual evidence for this attribution.

Let me end the discussion of Descartes with a brief methodological remark. This is that for our purposes here it is irrelevant if the formal-causal metaphysics of the Replies is merely an ad hoc solution, or a merely pedagogic and useful expedient, with no lasting impact within Descartes’ metaphysics, and of doubtful consistency with his other doctrines.⁵⁴ It may also very well be the case that Descartes’ appeal to the authority of Aristotle, in a debate with theologians, is first and foremost a strategic move.⁵⁵ What matters for our purposes is solely the fact that a philosopher whose relevance to Spinoza’s intellectual development no one disputes outlines a certain way of thinking about the nature of causal relations. Spinoza’s Cartesian heritage is, as already noted, typically regarded as a reason to see him as a mechanist (indeed, a radical one, insofar as he is said to extend mechanism into the realm of the mental). And while I disagree with this particular conclusion, I endorse the more general methodological principle of taking Descartes’ thought seriously when trying to make sense of Spinoza. But this requires that we take into account *all* conceptions of causality Descartes puts at Spinoza’s disposal – including his account of formal causality.

⁵³ Carraud in contrast identifies Descartes’ *causa sive ratio* with the concept of “cause” “common” to efficient and formal causality (Carraud 2002, 282).

⁵⁴ Although Descartes claims that the reason he did not describe divine self-causation in formal-causal terms in the *Meditations* themselves is because he thought the point to be “self-evident” (AT 7, 239). For Descartes’ defense of his claims in the Replies as “useful” see, e.g., AT 7, 238, 241, 244.

⁵⁵ Cf. Laerke 2011, 452.

4 The nature of Spinozistic causes

(4.1) One way to put the main thesis of this paper is to say that the Cartesian notion of a formal cause, as described in the preceding section, is also the prototype of Spinoza's notion of cause. I say 'prototype' because, as Carraud notes, Spinoza certainly tinkers with Descartes' model.⁵⁶ Nonetheless, the fundamental meaning of causality for Spinoza remains that of a Cartesian formal cause.⁵⁷ This means that according to Spinoza to "cause" is for some essence to imply and produce certain properties, where the "essence" of a thing is defined as the set of properties 1) necessary and sufficient for the "actual" existence and conception of a thing, and 2) identical to a "power".⁵⁸ On this conception, causal relations are irreducible to merely conceptual connections, but they are intrinsically intelligible, where "intelligibility" means specifically the possibility of grounding every effect in some essence, and so of deriving it from that essence.

Spinoza's biggest departure from Descartes here is his universalization of the scope of formal causality. This happens in two ways. First, in Spinoza's view *all* causes necessitate their effects in the way that the Cartesian God's essence necessitates divine perfections.⁵⁹ In other words, in Spinoza's framework, every effect occurs with the conceptual necessity of an essence implying a property. Formal causality governs finite things as well as infinite things, both real beings and mere *entia rationis*.⁶⁰ Hence it determines not only how a thing relates to

56 Carraud 2002, 315 f.

57 In contrast Carraud takes Cartesian formal causality, which he thinks (rightly in my view) is affirmed by Spinoza's opening definition of *causa sui*, to be only the *original* determination of the nature of causality in the *Ethics*. According to Carraud, Spinoza's most fundamental causal principle is the identification or conjoining of efficient and formal causality, as expressed (he believes) in the phrase *causa sive ratio* (Carraud 2002, 315, 339–41). I will argue for a different relation of formal and efficient causality in the *Ethics* and for a different reading of *causa sive ratio*.

58 See E2def2; E3p7d; E1p34. For other glosses of Spinozistic essence in terms of necessary and sufficient properties, cf. Bennett 1984, 147, 233; Crane/Sandler 2005, 194. As is often noted, not every necessary property of a thing is part of its essence in Spinoza's view. The "actual" existence of a thing is to be contrasted here with its existence solely qua formal essence, that is, qua eternal and indiscernible implication of substantial essence (see E2p8c,s; KV 2.20 n. C; I/97). On the identity of power and essence in Spinoza's metaphysics see, e.g., Viljanen 2011, 71–6; Hübner forthcoming c.

59 This is in contrast to Viljanen's restriction of the "formal-emanative" element of causality to an "aspect" or "type" of Spinozistic causation (Viljanen 2008, 424; Viljanen 2011, 44).

60 This is in line with Spinoza's explicit and repeated identification of properties and essences (E3defaff22exp; TTP4.2 [III/60]). Hence, a formal-causal interpretation of Spinoza's metaphysics offers one way to resist Curley's influential claim that the fact that Spinoza uses a causal

itself – as in the two cases, that of God and a triangle, that Descartes describes in the Replies – but also how it relates to *other* things – how substance relates to its modes, those modes to still other modes (though of course in Spinoza's substance-monistic framework this 'otherness' no longer has the robust Cartesian sense of a "real" distinction). In short, on the account being proposed, Spinozistic substance has a formal-causal relation to its own existence as well as to all its modes (or *propria*⁶¹); likewise, each mode has a formal-causal relation to its modes. We can put this last point slightly differently by saying that we can also understand each thing's conatus, or striving, on a formal-causal model. In Spinoza's view, the essence of every actually existing thing gives rise to certain necessary effects, and a thing's striving consists just in those effects (E3p6 f.).⁶² This once again is just the formal-causal schema of inference of properties from an essence. Finally, in cases of inadequate, or partial, causation (E3def1), the formal cause of a given effect is constituted by the *set* of relevant essences – that is, by all the essences that together form the total or "adequate" cause of, and thus give the whole reason for, the effect in question. As is well-known, more often than not, modes are merely partial or inadequate causes of effects (indeed it's not clear that modes can never be adequate or complete causes). So the complete explanation of a given effect will require us to appeal to a relevant collection of essences, which together constitute the complete explanation and formal cause of the effect.⁶³

The second sense in which Spinoza universalizes the Cartesian model is insofar as he takes formal causes to be equally capable of providing a reason for a thing's existence as for its *nonexistence*. That is, formal causality describes not

vocabulary to describe the relation of substance to modes shows that we cannot regard modes as properties inhering in substance. (See Curley 1969, 19; cf. Curley 1988, 36.) For other criticisms of Curley's reading see, e.g., Carriero 1995, Della Rocca 2008, Melamed 2009. For an account of Spinoza's view of *entia rationis*, see Hübner forthcoming a.

61 This Scholastic term, often used to describe the ontological status of Spinozistic modes (see, e.g., Melamed 2009), picks out properties necessitated by a thing's essence, but not themselves essential. Cf. TIE § 95 (II/34).

62 I assume here the standard view that that striving is limited to modes; for a broader reading of the scope of striving, see Della Rocca 2008 and Hübner forthcoming b. For a more detailed defense of my conception of striving, see Hübner forthcoming b. For other accounts see, e.g., Bennett 1984, 231–52; Carriero 2005; Curley 1988, 107–24; Della Rocca 2008, 137–72; Garrett 1999; Garrett 2002; Lebuffe 2004; Lin 2006; Nadler 2006, 194–200; Vijanen 2011, 83–104, Youpa 2003.

63 Thanks to Donald Rutherford for pressing me on this point. I thus disagree with Viljanen's conclusion that the formal-causal model must be "qualified" for finite things, given that often they are inadequate causes (2008, 425; 2011, 48). Cf. Melamed's rejection of the formal-causal reading of Spinozistic causality because of modes' lack of causal self-sufficiency (2005, 166).

only how and why things come into existence, as it did for Descartes (whether it was a matter of divine existence or the existence of a geometrical property), but also why they necessarily fail to exist. This reflects Spinoza's *über*-robust PSR which requires a "reason or cause" for nonexistence as well as for existence (E1p11altd1). So, in contrast to Descartes' model, "self-causation by reason of essence" (i.e. formal-causal self-causation) will encompass not only the unique instance of positive self-causation that is the divine *causa sui*, but also potentially infinite instances of negative self-causation in case of contradictory (pseudo-)essences such as square circles. In such cases it is the contradictoriness of the alleged essence that is the reason for that being's nonexistence.⁶⁴ The formal-causal model so described accounts for all causal relations in Spinoza's metaphysics, and so deserves the title of Spinoza's fundamental causal model. Spinoza thus achieves the generality of the formal-causal model – i.e., its applicability to the essences of all knowable things – that Descartes emphasizes in his account of Aristotle's text but himself does not carry out.

(4.2) One may be tempted to trace Spinoza's universalization of Descartes' causal model to Spinoza's commitment to naturalism, i.e. to his commitment to the existence of one set of laws for all things (E3pref; II/138). But this does not quite suffice as an explanation, insofar as already Descartes acknowledges a sense of *causa* "common" to both formal and efficient causes (AT 7, 238), and so could perhaps also be described as a naturalist with respect to type of causality. It seems more accurate to trace the universalization of formal causality instead to Spinoza's belief that God is the only possible substance. For if we grant this premise, as well as Descartes' formal-causal analysis of God's causation of all his perfections, we arrive at the claim that all things are formally caused (by the divine essence) and formally causing (further divine properties, or modes of modes), which, I have suggested, is precisely Spinoza's view.

But Spinoza's move toward a universalization of Descartes' model also addresses a flaw within Descartes' account. As we saw earlier, one of Descartes' claims is that efficient causes furnish the basic meaning of "cause": we can explain the nature of formal causes only by reference to efficient ones. However, given his own characterization of formal and efficient causes, it's unclear that Descartes is in fact *entitled* to this explanatory priority of efficient causes, and thus to thinking of causality generally as paradigmatically a transaction between "external" or "distinct" entities. For, as we saw, in Descartes' view formal causes differ from efficient causes only insofar as the latter must

⁶⁴ In contrast, according to Carraud, Spinoza interprets cases of internal contradiction as instances of *ratio* alone, not causality (Carraud 2002, 332).

be external to their effects. This means that already for Descartes formal-causal relations are in principle capable of extending to a *wider range of relata* than efficient-causal ones, insofar as only the former, but not the latter, can relate a thing to itself. Given this identity of efficient and formal causes in all other respects, already on Descartes' own account efficient causes seem to be more accurately described as a *type* of formal causes, even if in the order of knowing efficient causes serve as the paradigm through which formal causes are discovered, and even if in a substance-pluralistic framework the majority of causal transactions takes place among really distinct things. But on Descartes' own characterization of efficient and formal causes in the Replies, nothing in that account requires him to restrict the scope of formal causality, as he does, to the relation between a thing and its own properties. In other words, Descartes never explains what it is about a formal cause that prevents it from being able to also relate *different* things to one another. In this sense, we could see Spinoza's universalization of Cartesian formal causality as acknowledging that Descartes does not offer a valid reason for restricting its scope.

(4.3.) One consequence of Spinoza's universalization of Descartes' formal-causal model is that however we further qualify causal relations in Spinoza's framework – for example, as “free”, “compelled”, “first”, “*per se*”, or “accidental” – in each case we shall be dealing at bottom with a formal-causal relation.

Most importantly for our purposes, this applies also to *efficient* causes. That is, on the reading being proposed, Spinozistic “efficient” causality does not name a *sui generis* type of causality, i.e., one with its own distinctive properties. *A fortiori* efficient causality does not name some more fundamental type of causality, as it did for Descartes. Instead, Spinozistic efficient causality represents, I suggest, a type of formal causality. More specifically, I agree with Carraud that in the *Ethics* Spinoza associates “efficiency” with God's causation of modes.⁶⁵ The more general principle at work here is that for Spinoza – as also, as we saw above, for Descartes – “efficient” causal relations are relations between external or distinct things. In short, I suggest that we should not take Spinozistic “efficient” causality to be equivalent to activity or productivity *simpliciter*, as some have suggested.⁶⁶ Rather, the activity or productivity bears on external and distinct things – with the caveat again that in Spinoza's substance-monistic framework, all externality and distinction has to be understood in terms of modal, rather than real, distinction.

⁶⁵ Carraud 2002, 305, 314.

⁶⁶ See, e.g., Donagan 1989, 91.

In short, I suggest that for Spinoza an efficient cause is just a formal cause whose essence is modally distinct from the essence of its effect. In Spinoza's metaphysics, this condition will be satisfied by most cases of causation – namely, by all cases except for those of positive or negative self-causation. On the reading being proposed, we can thus indeed articulate the nature of Spinozistic efficient causality in positive and precise terms, but it is formal causality, rather than mechanism or a denial of teleology, that provides the fundamental reference point.

5 Advantages and objections

In the previous section I sketched the formal-causal metaphysics I wish to attribute to Spinoza. In this section I want to flesh out some of the reasons why we might want to prefer this kind of reading over rival interpretations surveyed earlier, and also address some of the reasons we may want to object to such a reading.

(5.1) Let me start with the advantages, which have to do with explanatory power and parsimony.

The first advantage the formal-causal reading that I want to point to has to do with the problem of characterizing the intelligibility of causal relations. Recall that extant logicising readings fail to articulate a model of inference that would be capable of mirroring the relations of causal dependence that Spinoza in fact accepts in his metaphysics. We are now in a position to see that we do not have to accept Della Rocca's pessimistic verdict that Spinoza's writings do not contain the "resources" necessary for an adequate logical characterization of causal dependency in his metaphysics. This is because the formal-causal model supplies the missing metaphysical constraint that allows us to determine which relations of conceptual dependence, among all those possible on standard models of inference, are metaphysically possible according to Spinoza: namely, only those entailments that hold between the divine essence and the properties it (standardly) implies, and between the essences of those properties and their properties. In other words, the formal-causal model provides a metaphysical foundation for a purely logical characterization of causal relations in Spinoza's metaphysics.⁶⁷

Again, then, it is worth stressing that we must distinguish the framework of formal-causal relations from a purely logical framework. This is not just because,

⁶⁷ Additional metaphysical constraints will have to be taken into account to fully model causal relations: in particular, a prohibition on inter-attribute relations. But one could argue that since essences are always understood under a particular attribute, this restriction is implicit in a properly worked out formal-causal model.

as we already noted above, formal-causal relations are irreducible to relations of conceptual dependency (insofar as they also involve existence-producing relations). The second reason we should distinguish a formal-causal framework from a purely logical framework is that the relations of conceptual dependency, that a formal-causal framework does put in place, are constrained by an ontological framework of essence-property relations.

A second advantage of the formal-causal reading has to do with its generality. The model of Spinozistic causality I have proposed is articulated entirely in terms of essence-property relations. In this sense, it is attribute-neutral: it makes no irreducible references to a specific kind of being, such as extension, as mechanistic readings do. Hence the model is just as applicable to causal relations among bodies as to causal relations among ideas. Consequently, unlike mechanistic readings, it immediately offers a desirably general model of Spinozistic causality. And, unlike idealist readings, it does not force us to give up on Spinoza's commitment to a multiplicity of attributes.

Third, there is the explanatory parsimony of the formal-causal reading. What I have in mind here is that to establish the existence and necessity of formal-causal relations in Spinoza's metaphysics, we do not need to posit anything over and above the existence of essences, as Spinoza understands essences. For to assert, as I want to do, that for Spinoza all causality is at bottom formal causality is simply to restate his fundamental commitment to the existence, for each thing, of an essence that is both intelligible and productive (i.e., gives rise to some effects) (E2def2, E1ax2, E1p36). In other words, within Spinoza's essentialist, PSR-governed framework, to grant that substance produces certain effects is *ipso facto* to grant the existence of formal-causal relations. In this sense, the notion of "formal cause" identifies something as ontologically basic in Spinoza's metaphysics as "essence" and "property" (after all, a formal-causal relation is just the relation between an essence and its property). This is not to say that Spinoza's commitments to universal intelligibility and to the productivity of essences do not require further examination or defense. My point here is merely that formal-causal relations constitute a layer of Spinoza's ontology as fundamental as the existence of substance and its modes.

The final advantage of the formal-causal reading has to do with the grounds and nature of Spinoza's necessitarianism.⁶⁸ This is a vast and controversial topic, and I am able here to only offer a rough sketch of a suggestion. Some of the par-

⁶⁸ For discussion of Spinoza's necessitarianism, see, e.g., Garrett 1991, Carriero 1991, Curley and Walski 1999, Newlands 2013. Cf. Spinoza's use of geometrical analogies to illuminate the nature of necessity (E4p57s;II/252); cf. Barrow, cited in Mancosu 1999, 21 f.

tisans of the necessitarian reading of Spinoza view this necessitarianism as a lesson Spinoza learns from the new science.⁶⁹ But it is unclear how such science could ever ground the necessity of causal relations, unless we can also appeal to some further metaphysical premise (for example, about the nature of God).⁷⁰ So tracing Spinoza's necessitarianism to the influence of physics seems to be of little help in coming to understand his necessitarianism. The formal-causal reading of his metaphysics, in contrast, allows us to see Spinoza's necessitarianism as part and parcel of his conception of causality:⁷¹ the existence of all things is necessary, because, and in the sense that, it is inferable ultimately from substantial essence, and the relevant sense of necessity is conceptual necessity proper to essence-property relations. This is not to deny the influence of (for example) Avicenna's modal views on Spinoza's thinking. My point here is merely that whatever the historical lines of influence, a formal-causal model offers us a way of articulating both the nature of Spinoza's modal commitments and a way of systematically integrating those with his other metaphysical doctrines.

(5.2) Confronted with the above list of the explanatory virtues of the formal-causal model, one could object to it in at least two ways. First, one could argue that all these purported virtues are nullified by the incoherence of the very idea of a formal-causal relation. And clearly, no causal model can offer a superior explanation of Spinoza's metaphysics if it is itself unintelligible. But a relation that is irreducibly both productive of an existence and inferential – which is how I described formal-causal relations above – seems to be an incoherent hybrid of two very different kinds of relations.

I suggest, however, that this objection begs the question. For it assumes what a formal-causal model implicitly denies, namely that for Spinoza there is something like causality in the narrow sense of mere existential productivity without an intrinsic relation to thought. For only then can a formal-causal relation seem like a hybrid. But from the perspective of the formal-causal model, it is this narrow sense of 'mere' or productive causality that is a derivative abstraction, whereas formal-causal relations identify something as ontologically basic and irreducible as essences and properties. It does not seem to me that this is an obviously inconsistent way to think about causality, and even if one were to produce an argument to that effect this debate is separable from the question of whether or not this is how Spinoza conceives of causality. Finally, even a reader unconvinced of my proposal has to grant that, for better or worse, Spinoza believes in *some* sort of

⁶⁹ See, e.g., Bennett 1984, 216; Curley 1988, 44 f.

⁷⁰ Cf. Carriero 1991, 47.

⁷¹ Cf. Vilijanen 2008, 424.

extraordinarily close association between causal and conceptual relations. The question then is how best to explicate this association.

A second way one could object to my proposal is to argue that the promised explanatory advantages of the formal-causal model are trumped by this model's failure to offer as satisfactory an explanation of the *physical world* as that provided by mechanistic readings. For to say that for two billiard balls to collide is "for certain properties to follow from certain essences" does not tell us much about how bodies, as we experience them, interact, in question, and certainly does not help us predict or experiment. In other words, the formal-causal model seems to lose sight of the phenomena, and to force us to give up on Spinoza as a physicist. On this front at least it seems to do only marginally better than idealist interpretations, which deny the existence of irreducible physical interactions.

This objection raises an important issue, one that arguably has not been sufficiently addressed by earlier formal-causal accounts of Spinoza. On its own the formal-causal model indeed does not amount to a physics with concrete explanatory principles. But that is not its purpose. Its purpose is to articulate the general nature of causality, regardless of whether the essence in question belongs to a mind or a body, and whether it gives rise to ideas or movements. What *would* be damning is if this metaphysical model were somehow inconsistent with Spinoza's physics. In fact the formal-causal model is not only consistent with this physics but *grounds* this physics.⁷² This, it seems to me, is precisely what Spinoza is doing in the Physical Digression (E2L4–6), where he analyzes the "forms" and "natures"⁷³ of things in terms of configurations of bodies communicating motion and rest in a constant manner: he is explicating the nature of essences more determinately from the perspective of extension, thereby grounding an attribute-specific mode of physical explanation in a perfectly general formal-causal metaphysics.

A formal-causal interpretation of Spinoza's metaphysics thus does not simply reject mechanistic interpretations of Spinoza's doctrines. Rather, it grounds such interpretations, but on the condition that we understand mechanism as a less general – attribute-specific – and founded explanatory framework, concerned with the essences of extended things alone (that is, with essences understood as arrangements of matter in motion), and with properties that follow from such arrangements.

72 Cf. Garrett 1994, 96 f., and Pasnau's remark that in the Aristotelian framework formal-causal explanations take place at a higher, more abstract level than material- and efficient-causal explanations (2004, 40).

73 For Spinoza the term "nature" is equivalent to "essence" (cf., e.g., E1p36d, E4def8; E4p19d).

6 The textual case

(6.1) In this last section I want to make a textual case for attributing to Spinoza a formal-causal metaphysics as described above. My claim will be that the various building blocks of Spinoza's picture of causality – his vocabulary, his doctrines, and his models – all overwhelmingly point to a formal-causal conception of causality, in conspicuous continuity with Descartes' account in the Replies. Making the textual argument will also allow me to flesh out my account of Spinoza in more detail.

I will start with an obvious piece of text that, perhaps surprisingly, has been seldom discussed: Spinoza's use of the term *causa formalis*. This phrase appears in only one place in Spinoza's corpus: in E5p31 and its demonstration. In E5p31d, Spinoza glosses *causa formalis* with the help of *sive* as "adequate cause" (II/299). Now, an adequate cause, as is well-known, is just the total or true cause of a given effect, the cause that allows us to genuinely understand this effect (E3def1). This suggests then a heretofore neglected equivalence in Spinoza's metaphysics between "cause" simpliciter and "formal cause", such that every cause is to be understood as a formal cause or, in cases of inadequate causation, as a component of such a cause.⁷⁴ Spinoza explicitly describes cases of inadequate causation in terms of larger sets of essences providing the total reason for a given effect. Consider the following passage for example (keeping in mind the equivalence, within Spinoza's framework, of *natura* and *essentia*):⁷⁵ "All modes by which a body is affected by another body follow both from the nature of the body affected and at the same time from the nature of the affecting body" (E2a×1'; II/99). That on a formal-causal reading of Spinoza's metaphysics we can regard a collection of modally distinct essences as a single formal cause is a way of individuating causes that fits well with Spinoza's weak, quasi-relativist criteria for what can count as a unity or an individual more generally.)⁷⁶

The next texts I want to consider are two texts emphasized by Carraud. The first of these is the opening definition of the *Ethics*, the definition of *causa sui*

⁷⁴ This conclusion that formal causality has universal scope in Spinoza's metaphysics seems to be further confirmed by Spinoza's explanation of the "sameness" of causality throughout nature in terms of inference from an essence: "from the given divine nature both the essence of things and their existence must necessarily be inferred [*concludi*]; and in a word, God must be called the cause of all things in the same sense in which he is called the cause of himself" (E1p25s; II/67). However, this passage is ultimately more suggestive than conclusive, given the ambiguity of the "and" conjoining the clauses.

⁷⁵ See note 76 above.

⁷⁶ See E2def[8] (II/99); E2Ls (II/102); E4p18s (II/223). For more detailed accounts, see, e.g., Melamed 2010 and Hübner forthcoming c.

as “that whose essence involves existence, or [sive] that whose nature cannot be conceived except as existing” (E1def1). Some scholars have argued that this definition expresses only the traditional, negative sense of self-causation.⁷⁷ By contrast, Carraud proposes that we should see this definition as describing an instance of formal causality, such that this sort of causality would be introduced in the very first line of the *Ethics*.⁷⁸ However, because Carraud also (and mistakenly in my view) identifies Spinozistic formal causes with *ratio* alone, his interpretation of E1def1 is effectively indistinguishable from Della Rocca's idealist one, on which self-causation reduces to a conceptual relation.⁷⁹

There are good textual grounds for ruling out both the idealist and the negative interpretations of E1def1. As first piece of evidence, consider the following remarks of Spinoza's: “to be able to exist is to have power” (E1p11altd2); “[s]ince existing is something positive [...] we must assign [to it] some positive cause” (PPC Ax11); for substance (*per impossibile*) to “cause” another substance would be to “produce [*producere*]” it (E1p6d); and finally that an “internal cause” is “the power of [a thing's] own essence” (CM 1.3; I/240). Together, these comments strongly suggest that Spinozistic self-causation involves a positive and genuinely efficacious causal power, and not merely a relation of ideas (as on Carraud's and Della Rocca's readings), nor an absence of causality (as on the negative readings).⁸⁰ In second place, this same conclusion is suggested by Spinoza's commitment to the univocity of causal “sense” (E1p25s). For on the plausible assumption that to cause *modes* is to genuinely bring them into being,⁸¹ this is also what it must mean to be *causa sui*: that substance is *causa sui* means minimally that it brings itself into being. Finally, the negative gloss of E1def1 is also discouraged by the fact that in Spinoza's framework we cannot identify self-causation – the definiendum of E1def1 – simply with *divine* self-causation. For according to Spinoza *all* things are arguably to some degree self-caused.⁸²

For a number of reasons then, both negative and purely conceptual glosses of E1def1 (including Carraud's) seem implausible. Nonetheless Carraud is right in my view to emphasize the similarity between Spinoza's account of self-causation and Descartes' explicitly formal-causal account of *causa sui* in the Replies.

⁷⁷ See, e.g., Curley 1969, 81, 75 f.; Mason 1987, 110; Wolfson 1934, 325.

⁷⁸ Carraud 2002, 311.

⁷⁹ See Della Rocca 2003, 87; Della Rocca 2008, 50.

⁸⁰ See, e.g., Bennett 1984, § 18.4; Laerke 2011, 458.

⁸¹ Whether Spinoza's God genuinely causes modes has of course been disputed, most famously perhaps by Hegel. See, e.g., Hegel 1995, 3, 256–8; and Melamed 2010; Newlands 2011; Newlands 2011b; Hübner 2014 for further discussion.

⁸² Cf. E3p6 f.; Garrett 2002, 138–140.

(Recall Descartes' remark that "what derives its existence from itself" "derive[s] its existence from itself as a formal cause" [AT 7, 238].) This similarity to Descartes' formal-causal account of self-causation comes across most clearly perhaps in the passage where Spinoza classifies causes of existence, and which also constitutes his most extensive discussion of self-causation in the *Ethics*. Recall that in the Replies Descartes categorizes causes of existence by distinguishing "external" and "efficient" causation from causation by essence, or "formal" causation. This is what Spinoza writes:

[...] a thing's existence follows necessarily either from its *essence and definition* or [vel] from a *given efficient cause*. And a thing is also called impossible from *these same causes* [causis] viz. either because its essence, or [sive] definition, involves a contradiction, or [vel] because there is no *external cause* which has been determined to produce such a thing. (E1p33s1; II/74; emphases added)⁸³

The label "formal cause" is absent from Spinoza's version of the classification, but the principles of the classification remain unchanged. Spinoza's other metaphysical commitments – in particular, his substance-monism and his robust PSR, which governs also cases of non-existence – will force shifts in the meaning of "externality" and "self-causation", to be sure. Nonetheless the fundamental similarity between Descartes' and Spinoza's accounts of self-causation seems to be a good reason to view the Spinozistic *causa sui* as a formal-causal relation.

(6.2) A second text emphasized by Carraud is Spinoza's use of the locution "*causa sive ratio*".⁸⁴ Some of Spinoza's readers view this infamous phrase as a sign of a confusion on Spinoza's part about two self-evidently heterogeneous realms;⁸⁵ others still take it to confirm the virtues of a logicising reading of Spinoza's metaphysics.⁸⁶ In my view, however, Carraud is right that the phrase points instead to the Cartesian notion of formal causality.⁸⁷

83 Carriero reads E1p33s1 as expressing the traditional Aristotelian distinction between what is necessary *non-causally* and what is necessitated by "efficient" causation (1991, 75 f.). This reading appears to be supported by Spinoza's distinction of necessitation "by reason of essence" and "by reason of cause" in the immediately preceding (unquoted by me) sentence (cf. also CM 1.3 [I/240]). But, *pace* Carriero, necessitation by reason of essence must be seen as a case of causation in the *Ethics* since (1) in the portion of E1p33s1 quoted by me Spinoza describes both alternatives as "causes"; I take this to clarify the sense of the earlier, unquoted disjunction emphasized by Carriero, and to point to a change of view from the early CM; (2) E1def1 treats necessitation of existence by essence as a case of "causation".

84 Carraud 2002, 315–8.

85 See, e.g., Mason 1987, 111 f.

86 See, e.g., Bennett 1984, § 8.3.

87 Carraud 2002, 315.

As we saw earlier, Descartes treats the phrase “*causa sive ratio*” as a synonym for *causa formalis*. And in Spinoza's writings, the locution “*causa sive ratio*” first appears precisely in the *Principles of Cartesian Philosophy* (PPC) – ostensibly a textbook on Descartes' philosophy – in a gloss of the first axiom from the Second Replies. As Carraud points out, Spinoza is not quite faithful to Descartes' axiom.⁸⁸ In its Cartesian version, we can recall, this axiom bears on the causes of the existence of things, and it distinguishes the causes, *simpliciter*, of creaturely existence from the “cause-or-reason” of divine existence. However, Spinoza recasts the axiom as a demand for an inquiry into the “cause-or-reason” of *each thing's* existence:

Nothing exists of which it cannot be asked, what is the cause or reason, why it exists. See Descartes' Ax1: [...] Since existing is something positive, we cannot say that it has nothing as its cause [...]. Therefore we must assign some positive cause, or [sive] reason why [a thing] exists – either an external one, i.e., one outside the thing itself, or [vel] an internal one, i.e., one comprehended in the nature and definition of the existing thing itself. (PPC, Ax11; I/158)

In other words, in his gloss of Descartes' axiom, Spinoza universalizes the identity of causes and reasons that Descartes had reserved for the divine case alone, instituting one and the same principle for all causes of existence, such that it is the existence of every thing that now has a cause-or-reason. One can, to be sure, still distinguish between “external” and “internal” causes of existence, but this distinction no longer lines up with a distinction between causes *simpliciter* and causes-or-reasons, as it did for Descartes. The distinction now is instead between external and internal instances of *causa-sive-ratio*.

One could object of course that what Spinoza does in a manual on Descartes' philosophy is of limited significance when it comes to understanding his considered views on causation. But we find the same line of thinking about existential causes in the *Ethics*, so in Spinoza's mature statement of his own system. Spinoza explicitly reaffirms there PCP's typology of internal and external “causes-or-reasons” of existence, once again asserting the equivalence of *causa* and *ratio* for each and every thing. This time, however, in line with his version of the PSR – which as we have seen demands explanation of non-existence as well as existence – Spinoza generalizes the Cartesian axiom even further, to cases of nonexistence, thereby introducing internal but non-divine and negative causes-or-reasons:

⁸⁸ Carraud 2002, 316–8.

For each thing there must be assigned a cause, or [seu] reason, as much for its existence as for its nonexistence [...]. [T]his reason, or cause, must either be contained in the nature of the thing, or [vel] be outside [extra] it. E.g., the very nature of a square circle indicates the reason why it does not exist [...]. [W]hy a substance exists also follows from its nature alone [...]. But the reason why a [particular – KH] circle or triangle exists, or why it does not exist, does not follow from the nature of these things, but from the order of the whole of corporeal Nature. (E1p11altd1; II/52).⁸⁹

The terminology of “formal cause” is once again missing from Spinoza’s account. But these external and internal causes-or-reasons of existence and non-existence fit perfectly Descartes’ characterization of a formal cause: they are all “reasons derived” from a thing’s “essence”. In the substance-monistic framework of the *Ethics*, this derivation is in every case ultimately a derivation from the divine essence: it is from this essence, as from an internal and positive cause-or-reason, that God’s own existence follows; it is also from this essence, as from an external and positive cause-or-reason, that the existence of every mode follows, whether immediately or through the mediation of other modes. This includes the modes of thought through which finite minds represent contradictory *entia rationis*.

We can thus trace a direct line of influence from Descartes’ Replies, where the formula “*causa sive ratio*” identified formal causes, through the PCP all the way to the *Ethics*. This makes it at the very least plausible that Spinoza’s talk in that treatise of causes-or-reasons in E1p11altd1 and elsewhere preserves the Cartesian, formal-causal sense of the term, as Carraud proposes. This finding lessens the force of a natural objection to any formal-causal reading of Spinoza, which is that Spinoza uses the term *causa formalis* much too infrequently for such a reading to be plausible. But if we accept that in Spinoza’s writings the phrase *causa sive ratio* retains the Cartesian sense of a formal cause then, contrary to the objection, we *do* have further instances of the relevant terminology in Spinoza’s corpus. Understood in this formal-causal sense, the point of the formula *causa sive ratio* is, I suggest, that *causa* and *ratio*, properly understood, refer to one and the same thing (just as do “God” and “substance”, or “virtue” and “power”⁹⁰). That is, for the Spinoza of the *Ethics*, the equivalence of “causes” and “reasons” consists in the fact that both terms pick out one and the same thing, the thing that, qua cause, produces an existent and, qua *ratio*, implies and grounds a property. As

⁸⁹ Cf. CM1.3 (I/240f.). The causal structure of the “order of the whole of corporeal Nature” is further specified in E1p28. As Carraud notes, in the *Ethics* Spinoza introduces the formula cause-or-reason in the very same context as Descartes introduced his formula: that of proving divine existence in E1p11 (Carraud 2002, 318).

⁹⁰ See E1p14; E4def8.

noted above, from this sort of perspective, it is inadequate to think of the production of existents as severed from a relation to thought, and it is equally inadequate to understand “reasons” for things being one way or another as separable (other than by abstraction) from causal relations that bring them into existence. The formula thus functions as an implicit redefinition of both terms; as such, it forms part of Spinoza's general endeavor in the *Ethics* to systematically redefine inherited philosophical vocabulary.⁹¹

(6.3) Let me now turn to Viljanen's case for his “formal-emanative” reading of Spinoza. This case centers on Spinoza's frequent recourse to geometric analogies to represent divine causality, as in this passage:

[F]rom God's supreme power, or infinite nature [...] all things, have necessarily flowed [*effluxisse*], or always follow, by the same necessity and in the same way [*eodem modo*] as from the nature of a triangle it follows, from eternity [...] that its three angles are equal to two right angles (E1p17s; II/62).

The claim in this passage is that God's causation of modes is in some important sense no different from the relation between a triangle's nature and a necessary truth about its properties.

Different suggestions have been made as to how exactly we are supposed to understand such analogies. Some of Spinoza's readers take them to “identify” or “assimilate” causal relations and purely logical relations, and so treat them as evidence of the correctness of the logicising readings.⁹² Others, including Viljanen, contend that the language of “flowing” points to an emanative model of causation.⁹³ Finally, Carriero reads the analogy as driving home the point that there are no ends in nature. This is because on the Aristotelian tradition final causes are excluded from mathematics.⁹⁴

Let us take these proposals one by one. We have already noted some of the conceptual problems faced by logicising readings. The fact that Spinoza's geometrical analogies are one of the two main pieces of textual evidence cited for such readings offers an additional reason to be wary of this line of interpretation. For to take the fact that Spinoza sees an analogy between the way that modes depend on the substantial essence, and the way that properties of a triangle (or truths about

⁹¹ In contrast, Carraud takes the point of the Spinozistic *causa sive ratio* to “make coincide the formal determination of God [as *causa sui*] with the efficiency that characterizes the causality of modes” (Carraud 2002, 339).

⁹² See, e.g., Bennett 1984, § 8.3; Curley 1969, 45 f.

⁹³ See, e.g., Gueroult 1968, 246–97; Viljanen 2008, 420; Viljanen 2011, 42; cf. Carraud 2002, 310, Carriero 1991, 61, 65.

⁹⁴ Carriero 1991, 63 f.; cf. Joachim 1901, 230; Wolfson 1934, 53; Aristotle, *Met.* II, 996a29.

such properties) depend on a triangle's essence as evidence for thinking that Spinozistic causality is in some way like purely logical relations between ideas requires us to see Spinoza's triangles as standing in for purely logical objects. But there is little reason to do so. This is not to deny that many philosophers indeed take mathematics to be reducible to logic. But we would be hard-pressed to find any evidence for such a view in Spinoza's writings.

At the very least then, we should treat the analogies as analogies with mathematical objects. Now, any "analogy" presumably works as a rhetorical and explanatory device only if its author can assume his readers' familiarity with it. And as already noted, the dominant mathematical tradition in Spinoza's time was still the Aristotelian one. So, as both Carriero and Viljanen suggest, this seems to be the right light in which to view Spinoza's analogy.

From the perspective of the Aristotelian philosophy of mathematics, the exclusion of final causes, emphasized by Carriero, is certainly one of the upshots of Spinoza's analogies, reflecting his notorious denunciations of natural teleology.⁹⁵ But, as Viljanen rightly objects, this negative result does not exhaust the significance of Spinoza's analogies.⁹⁶ For, as we saw earlier, the Aristotelians also took geometrical figures to be governed by formal-causal relations, thus dissociating formal and final causes. Spinoza's letters show that he had at least some familiarity with the views of contemporary mathematicians.⁹⁷ He would of course have also been familiar with Descartes' appeal to Aristotle's formal-causal account of geometry in the Replies. Indeed, in the *Ethics* Spinoza himself characterizes mathematical objects in a way that suggests a formal-causal conception of them: mathematics, he writes, leads us "to the true knowledge of things" because it "is concerned not with ends, but only with the essences and properties of figures" (E1App; II/79).⁹⁸ All this makes it quite unlikely that Spinoza would have made no effort to foreclose a formal-causal line of interpretation of the analogies – one that would have naturally occurred to his readers – if he had no intention of drawing on it.⁹⁹

In short, Viljanen seems to be right that Spinoza's use of geometric analogies to represent the nature of divine causality points to his adoption of a formal-causal framework. Since E1p17s1 bears on the production of "all things", the passage

⁹⁵ See especially E1App (II/77 f.), E4pref (II/206 f.). For the debate over the scope of these denunciations see, e.g., Bennett 1984, 213–46; Carriero 2005; Garrett 1999; Lin 2006; Hübner forthcoming b.

⁹⁶ Viljanen 2008, 414, 420 f.; Viljanen 2011, 42.

⁹⁷ See especially Ep. 8 and 9, which discuss the views of Clavius, Borelli, and Tacquet.

⁹⁸ Cf. Viljanen 2008, 422; Viljanen 2011, 44.

⁹⁹ Cf. Viljanen 2008, 422; Viljanen 2011, 44.

further confirms the universal scope of formal causality in Spinoza's metaphysics. More precisely, I suggest that the "mode" of divine and geometrical causation is supposed to be the "same" insofar as in both cases it is a formal-causal relation; the "necessity" in turn is the same in the two cases insofar as in both it is the conceptual necessity of a certain property (the sum of interior angles in the one case, the totality of beings in the other) being implied by the definition of a thing's essence. Although a triangle, unlike substance, has no causal powers to produce real beings, its essence nonetheless suffices as a ground from which we can deduce the existence of certain beings of reason, endowed with objective reality.

What about the emanative readings of Spinoza's geometric analogies? Spinoza's description of properties as "flowing" from the essence indeed suggests some sort of debt to an emanative conception of causality. Viljanen argues that the debt is fundamental: in his view we need to think of Spinozistic formal causality as really "formal-emanative" causality, and trace it back to the Suárezian conception of emanation of *propria* from substantial forms.¹⁰⁰ In his view, the formal causality of geometrical objects is important to Spinoza insofar as it constitutes the clearest expression of such emanative natural causality.¹⁰¹

It seems to me, however, that Spinoza's geometric analogies have an importance beyond such epistemological and pedagogical considerations. I suggest that whatever remains in Spinoza's framework of late-scholastic emanative models of natural causality has been subsumed by a Cartesian, mathematical and inferential model of formal causality. For, given Spinoza's commitment to the PSR, it would not suffice to say merely, as Suárez does in a passage cited by Viljanen, that a substantial form has "a certain power for having its proper accidents emanate from it", or that there is a "natural connection" between the form and these properties.¹⁰² To make the causal relations at stake fully intelligible one has to specify the nature of this "connection", and explain *why* the properties in question must follow. Unlike Suárez, Spinoza cannot appeal here to an Aristotelian metaphysics of potentialities. But the Replies' inferential, mathematical notion of formal causality makes another kind of explanation available to him. That model of formal causality offers an answer to the question of why and how a given effect must "flow" from its cause: namely, because it is implied by the essence of that cause, as stated in its definition. Likewise, the Cartesian model of formal causality can explain in what sense there is a "natural connection" between a thing's essential nature and its properties: this is just the relation of implication.

100 Viljanen 2008, 412–28; Viljanen 2011, 41–6. For historically-based criticism of emanative readings of Spinoza, see Laerke 2011, 457 f.

101 Viljanen 2011, 44.

102 Suarez, DM 18.3.4, in Viljanen 2008, 417.

In short, I suggest that we understand the echoes of emanation in E1p17s properly once we see Spinozistic formal causality as emanation “mathematically rehabilitated”, what emanative natural causality truly is, once it is adequately understood.

(6.4) Spinoza models causality not only on geometrical figures but also more generally on the definitions of things, as in this passage:

From the necessity of the divine nature there must follow infinitely many things in infinitely many modes (i.e., everything which can fall under an infinite intellect). *Dem.*: This Proposition must be plain to anyone, provided he attends to the fact that the intellect infers [*concludit*] from the given definition of any thing a number of properties that really do follow necessarily from it (i.e., from the very essence of the thing). (E1p16)

The passage has occasioned a variety of readings. Carriero maintains that it depicts God as a blind, mechanistic efficient cause; he draws this conclusion in part because of Spinoza’s own later gloss of E1p16 as a representation of divine “power” (E1p17s1; II/62).¹⁰³ However, given Spinoza’s Cartesian heritage, it is not clear that references to causal “power” must point to a mechanistic framework. For, as we have seen, on Descartes’ account formal causality is in no way inferior in productive “oomph” to efficient causality. (The same doubts can be raised about claims that in Spinoza’s framework only efficient causes can “produce” or underlie “true actions” and “real” effects.)¹⁰⁴

Other scholars treat the fact that E1p16d likens causation to inference as evidence that Spinoza identifies causal relations with purely logical relations.¹⁰⁵ But such logicising interpretations of the passage miss half the evidence. For Spinoza is not talking here about inference *simpliciter*. Instead he is describing inferences from a definition. One might think that this qualification only bolsters logicising readings, insofar as it suggests that Spinoza is comparing causal relations to inferences from propositions. But recall that Spinoza subscribes to the traditional view that the definition of a thing states its essence (as he reiterates in the last line of E1p16d). So I think that Carraud is right to suggest that when Spinoza declares that to grasp how substance produces things we need to reflect on the way that an intellect infers properties from a definition, Spinoza is once again urging us to understand substantial causation on a formal-causal model.¹⁰⁶

103 Carriero 1991, 61 f.

104 For the first claim, see Melamed 2005, 167; for the second claim, Viljanen 2008, 417 f., 425; Viljanen 2011, 45.

105 Bennett 1984, § 29.5; Allison 1987, 69; Yovel 1991b, 87.

106 See Carraud 2002, 306. (Although, again, Carraud and I understand formal causality differently here.) Cf. Arnauld: “I can reply by giving the definition of roundness, i.e. by providing the

(6.5) The next piece of textual evidence I want to consider is Spinoza's habit of describing causal relations as relations of "following".

Many see this locution as further evidence in favor of logicising readings. The reason for this is that Spinoza seems to rely on a single notion – that of "following" – to represent both the dependence of propositions within his own arguments, and causal dependence in nature.¹⁰⁷ The problem with this argument is that the claim that Spinoza uses the language of "following" in an identical manner in both causal and demonstrative contexts is again only partially true. In fact, whenever Spinoza employs that term to refer not to his own demonstrations (or to relations between ideas more generally), but to causal relations, he consistently places the verb within more complex phrases, in conjunction with terms such as "nature", "definition", and "essence" (as in, something "follows from a nature", "from a definition", "from an essence") or effective equivalents of these terms.¹⁰⁸ But to assert that something "follows" from an "essence", "definition", or a "nature" is, once again, to invoke a formal-causal model of causation.

In this light, it is instructive to recall the concluding proposition of Part 1 of the *Ethics*: "Nothing exists from whose nature some effect does not follow" (E1p36; II/77). That is, there is no thing that is not a formal-cause.¹⁰⁹

(6.6) One piece of the proposed account is still in need of textual corroboration. This is the claim that for Spinoza the term "*causa efficiens*" identifies not a *sui generis* cause but those instances of *formal* causality where the cause and its effect are external to (i.e., modally distinct from) one another.

formal cause" (1990, 51). It may be objected that Spinoza's Letter 60 contradicts the suggestion that Spinoza's use of definitions in causal contexts is evidence of his adoption of a formal-causal model. This is because Ep. 60 states that the "definition of [a] thing should express its efficient cause". However, as Carraud points out, what Spinoza calls an "efficient" cause in that letter in its properties resembles a formal cause more than the "blind" efficient causes posited by mechanism (Carraud 2002, 320–4). The cause in question, writes Spinoza in the letter, is the one that allows us to "deduce" a thing's properties. Indeed, the letter's characterization of "efficient" causality is more generally at odds with Spinoza's systematic exposition of his mature views in the *Ethics*. For example, Ep. 60 calls God an "internal" "efficient" cause of himself, but as we have seen E1p33s1 distinguishes such self-causation from all "efficient" causation.

107 See note 23 for references.

108 Spinoza sometimes talks of "following" from (1) God's "power", but Spinoza identifies divine power and essence (E1p34); (2) "attribute", but attributes express substantial essence (E1def4); (3) simply "God", but this is presumably a shorthand for God's essence; (4) "necessity" of God's nature, but passages like E1p16d suggest this is equivalent to following "from God's nature"; (5) "cause", but, on a formal-causal reading, causes *are* essences.

109 Cf. Viljanen 2008, 419.

Spinoza's explicit classification of "efficient" causes as "external" in E1p33s1, examined above, is a key piece of evidence for this interpretation. But the interpretation is also borne out by Spinoza's use of this term throughout the *Ethics*. For virtually all references to "efficient" causes concern, at least implicitly, causal relations among external or modally distinct *relata*. Thus, the "efficient" causal relation at stake in passages such as E1p16c1, E1p25 and E2p5 concerns a relation between substance and modes; in passages such as E2def4exp, E3p15c, E3p17s, E4pref (II/207), and E4appVI, it concerns a relation between distinct modes.¹¹⁰

The interpretation of Spinozistic efficient causes as external causes also plausibly explains why Spinoza waits until E1p16c1 to introduce the term. As we saw, this is an interpretative puzzle much stressed by Carraud, and indeed a tricky case for any account that regards *all* Spinozistic causes as efficient. On the formal-causal reading there is in contrast a plausible explanation for the delayed introduction of the terminology. This is, as Carraud notes, that E1p16 is the first proposition in the *Ethics* to assert that God actually produces modes, that is, things with essences modally distinct from God's own.

In this gloss of "efficient" as "external" Spinoza agrees not just with Descartes but with the Aristotelian tradition more generally and with many other thinkers of his own time.¹¹¹ Thus, for example, Gassendi remarks in his set of Objections to the *Meditations* that "[a]n efficient cause is something external to the effect" (AT 7, 288); Arnauld and Nicole similarly state in the *Port-Royal Logique* that an "efficient cause is that which produces another thing [*autre chose*]"¹¹²

Given that Spinoza seems to systematically identify "efficiency" with the (modal) distinctness of the causal *relata*, and given, as I've tried to show in this section, that he also overwhelmingly characterizes the nature of causality by reference to a formal-causal model, it is at least plausible to infer that for Spinoza "efficient causes" are, as regards their nature, formal causes (that is, intrinsically both productive and inferential) and, in relation to their effects, modally distinct.¹¹³

110 Cf. also CM2.1 (I/268). One might object that the claim "nothing belongs to the nature of anything except what follows from the necessity of the nature of the efficient cause" (E4pr; II/207) is perfectly general, and so refutes my restriction of "efficient" causes to external causes, but in fact in the passage Spinoza is discussing only finite modes (allegedly "imperfect" "individuals in nature"), subject to such external causation.

111 See, e.g., Avicenna 2005, 6.1.2, Suarez, DM 15.6.7.

112 Arnauld/Nicole 1996, 3.18

113 Thanks to Donald Ainslie, Arnold Davidson, Charles Larmore, Gideon Manning, Yitzhak Melamed, Steven Nadler, Amanda Parris, Marleen Rozemond, Donald Rutherford, Eric Schliesser, Clinton Tolley, Valtteri Viljanen, Stephen Zylstra, the audiences at Leiden, SFSU, and UCSD, and to anonymous reviewers for invaluable comments on earlier drafts of this paper.

Works of Spinoza

CM *Appendix Containing Metaphysical Thoughts.*

E *Ethics.*

KV *Short Treatise on God, Man, and His Well-Being.*

PPC *Parts I and II of Descartes' Principles of Philosophy.*

TIE *Treatise on the Emendation of the Intellect.*

TP *Theological-Political Treatise.*

Works of other authors

PA Aristotle. *Posterior Analytics.*

MH Avicenna. *The Metaphysics of The Healing.*

DM Suárez. *Metaphysical Disputations.*

AT Adam/Tannery. *Œuvres de Descartes.*

PR Descartes. *Principles of Philosophy.*

Adam, C./Tannery, P. (eds.) 1996. *Œuvres de Descartes.* 12 vols. Paris.

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