Spinoza on the Resistance of Bodies

Individual Spinozistic bodies undergo change over the duration of their existence. This is no surprise. Spinoza’s world is a crowded world—a plenum—and its bodies are constant contact with other bodies. When neighboring bodies have incompatible properties—e.g., one is at rest and another is moving towards it—a change is required to resolve this incompatibility. But, as Leibniz famously points out, it is one thing for a body to undergo changes, and quite another for it to resist those changes. So, do Spinozistic bodies *resist* the changes that they inevitably undergo? Many commentators think that they do. [[1]](#footnote-1) Perhaps the most common view is that a body’s resistance goes hand-in-hand with its *conatus*, i.e., its striving to persevere in its state. But the question of whether Spinozistic bodies resist change is not particularly well-formed.[[2]](#footnote-2) As a result, it not clear what we should be looking for when we look for it in Spinoza’s physics. The purpose of this paper is two-fold: first, to clarify what it might mean for a body to offer resistance, and, second, to defend a qualified answer to the question.

In section I, I distinguish between two main concepts of resistance: a dynamical concept and a dynamical-metaphysical concept. In section II, I argue that facts about Spinozistic inertia are poor grounds for attributing resistance to Spinozistic bodies. In section III, I consider the possibility that bodily *conatus*, and not simple inertia, explains resistance. I argue that the evidence is likewise inconclusive. In section IV, I consider a third potential concept of resistance: a purely metaphysical kind of resistance that does not make a difference to dynamics. I argue that it is not a particularly helpful notion of resistance. Finally, in section V, I defend a strategy of looking for resistance in the mental analogue to collision. I argue that the adequacy of ideas constitutes a kind of mental resistance that is both dynamical and metaphysical. I point out a number of ways that mental resistance is nonetheless an incomplete concept.

**I. Concepts of Resistance**

As a way of clarifying the question of whether Spinozistic bodies resist change, it will help to turn to Leibniz, whose thoughts on the nature of resistance are better articulated than those of Spinoza.[[3]](#footnote-3) At one point in the correspondence between Leibniz and Burchard de Volder, the latter claims that mere extended substance can explain the inertia of bodies: “[e]ach thing has from its nature a force for continuing in its state, which does not differ from the very nature of the thing, and in the case of extension this is inertia” (305). [[4]](#footnote-4) Leibniz grants that a mere extended substance would *retain* its states unless caused to change, but he denies that this form of inertia would involve anything like *resistance* to change:

I admit that each and every thing remains in its state until there is a reason for change. This is a principle of metaphysical necessity. But it is one thing to retain a state until there is something that changes it, which even something that is intrinsically indifferent to both does, and another, which is much more significant, for a thing not to be indifferent but to have a force and, as it were, an inclination to retain its state, and so to resist changing. 313-4

In other words, while it is a metaphysical necessity that everything—including mere extension—remain how it is unless it is caused to change, it is a further fact that bodies also *resist* change. Merely extended substance, Leibniz argues, cannot offer this resistance: resistance and extension are just different things, and the former cannot be derived from the latter. Insofar as bodies offer resistance to change, they are not mere extended substances.

There is something intuitive about Leibniz’s distinction between a thing’s not changing unless caused to change and its resisting that change. To use Garber’s analogy, it is one thing to say that your child will go to bed if asked, but it is quite another to add that they will resist as they do so (1994: 47-8). The former fact—that if you child is asked to go to bed, then it will go to bed—is merely conditional tendency of your child, whereas the latter fact—their resistance—is not. But the intuitiveness of the distinction disappears upon further examination. After all, one could easily describe the child’s resistance as itself a set of conditional tendencies: for instance, if the child is asked to go to bed, then they will first cry and delay (etc.) and then go to bed. So, more needs to be said about what the resistance to change actually consists in.[[5]](#footnote-5) Fortunately, Leibniz distinguishes resistance from mere change on more than just the basis of their intuitive difference. Specifically, he offers de Volder two conditions for resistance, which he seems to take to be individually necessary and jointly sufficient. The first condition is metaphysically neutral in that it concerns only the dynamics of a system. [[6]](#footnote-6) The condition is this: bodies resist only if some property of body other than motion and shape plays a role in determining the outcome of their collisions. Leibniz identifies this property with size:

And so once, in a certain little book published in my youth, assuming matter to be intrinsically indifferent to motion and rest, I inferred from this that a very large body at rest should be moved by a colliding body, however small, without weakening the colliding body, and from this I inferred rules of motion abstracted from the system of things. And such a world could certainly be imagined, at least as possible, in which resting matter would obey that which moved it without any resistance. [[7]](#footnote-7) 314

That is, larger a body is, the more force that’s required to move it. The bodies of Leibniz’s early physics fail this condition insofar as a larger body requires no more force to be moved than a smaller body requires. Leibniz confirms the role that size plays in resistance in a later letter to de Volder:

When you say that more of a cause or force is required for a larger than for a smaller body to be moved at a given speed, you already tacitly presuppose that body resists motion. For, if it does not resist, but is indifferent and in a state of equilibrium, as it were, I do not see why its size would oppose something impelling it. And, however much such indifferent things increase in size, resistance will never arise 349-50

So, the outcome of collisions between resisting bodies requires more than the shape and motion of the bodies in question.

But Leibniz thinks that a system’s meeting this dynamical condition is insufficient to attribute resistance to its bodies. After all, Leibniz denies that Cartesian bodies offer resistance and yet he is no doubt aware that Cartesian physics gives size a role to play in the resolution of collisions. [[8]](#footnote-8) Consider Descartes’ third law of motion:

When a moving body collides with another, if its power of continuing in a straight line is less than the resistance of the other body, it is deflected so that, while the quantity of motion is retained, the direction is altered; but if its power of continuing is greater than the resistance of the other body, it carries that body along with it, and loses a quantity of motion equal to that which it imparts to the other body”. *Principles* 2.43

A body’s power of resistance is equal to either its own volume and speed (if it is moving) or the product of its own volume and the speed of the other body (if it is at rest). Size therefore plays a role in determining the resolution of collision. [[9]](#footnote-9) In fact, in the fourth rule of impact, Descartes explicitly says that a larger body at rest cannot be moved by a smaller body, no matter how fast it is moving (2.49).[[10]](#footnote-10) So, what, in Leibniz’s eyes, are Cartesian bodies missing if the size of a body correlates with the force required to move it? They fail a metaphysical condition on resistance: that some feature other than motion and shape plays a role in collision must be grounded in the *intrinsic* nature of bodies. This is a metaphysical condition since it concerns not the dynamics of a system but its metaphysical explanation. Leibniz thinks the bodies of his own account meet it: “matter was created by God in such a way that there is a certain repugnance to motion in it, and, in a word, a resistance, by which a body *intrinsically* opposes motion” (314, my emphasis). While Cartesian bodies meet the dynamical condition, Leibniz thinks that they fail the metaphysical condition. Size plays a role in determining the outcomes of collision between Cartesian bodies only because God directly wills it:

The soul is gradually freed from the false notions of the populous, and even the Cartesians, concerning matter and motion and corporeal substance, when it has come to understand that the rules of force and action cannot be derived from these notions, and that now one must either take refuge in Deus ex machina or understand there to be something higher in bodies. 350-1

Leibnizian resistance is therefore both a dynamical and a metaphysical concept: bodies offer resistance when something other than shape and motion plays a role in determining the outcome of collisions involving them *and* this fact is explained by some intrinsic feature of body.

We are of course under no obligation to agree with Leibniz about what bodily resistance amounts to, let alone the specific metaphysical grounding that he defends regarding it. But Leibniz’s distinction between the dynamics and the metaphysics of a system at the very least reveals that there are two potential concepts of resistance when debating whether or not bodies offer any resistance to change. Let us call a concept of resistance *dynamical* when it focuses on only the dynamical laws of a given system and not on their metaphysical grounding. For ease of expression, I will refer to dynamical resistance as ‘resistanceD’. When we ask whether Spinoza’s bodies resistD, we are asking whether a property of bodies other than shape and motion plays a role in the resolution of collisions. Let us call a concept of resistance *Leibnizian*when it focuses *both* on the dynamical laws of a system and their metaphysical grounding. For ease of expression, I will refer to Leibnizian resistance as ‘resistanceL’. To be clear, resistanceL is silent on what *exact* metaphysical feature of bodies grounds the dynamics of a system—it requires only that some intrinsic feature or other of body does in fact ground the dynamics.[[11]](#footnote-11) When we ask whether Spinoza’s bodies resistL, we are asking whether those bodies resistD *and*, if so, whether their resistanceD is explained by the intrinsic nature of Spinozistic bodies.[[12]](#footnote-12) ResistanceL seems to be the concept of resistance that is closest to the one commentators seem to care about, insofar as Leibniz’s letter to de Volder is often mentioned in discussions of resistance in Spinoza.[[13]](#footnote-13) Nevertheless, the less committal concept of resistanceD is still worth keeping in mind, insofar as it is both an important dynamical concept and a component of resistanceL. In section IV, I will consider a third potential concept of resistance, viz. a purely metaphysical concept. For the next two sections, however, I will focus on these first two kinds of resistance.

**II. Inertia**

Let’s turn to the question of whether Spinozistic bodies resist change, in either sense. A natural place to start is by looking for resistance in Spinoza’s account of inertia and the role that inertia plays in the resolution of collisions. By ‘inertia,’ I mean a body’s tendency to remain in its state of motion or rest unless caused to change. This is a natural starting place because it is in the context of the inertia of Cartesian bodies that Leibniz denies that they resistL change. The section will proceed as follows. First, I will look at the evidence of resistanceD in Spinozistic collisions. I will argue that the evidence is minimal. Second, I will argue that even if there is resistanceD, Spinoza’s proofs of inertia show that there is little basis for thinking that resistanceD could be derived from facts about inertia. Therefore, inertia is a poor basis for attributing resistanceL to Spinoza (since resistanceL requires resistanceD and the latter cannot be derived from facts about Spinozistic inertia).

Let’s begin with resistanceD. Given that Spinoza is often taken to follow Descartes on matters pertaining to physics, one might expect that Spinozistic bodies at least resistD each other. After all, Cartesian bodies do. But this expectation is unwarranted given the increasing recognition of the ways that Spinoza’s conception of the physical world differs from that of Descartes. For example, Spinoza denies that the nature of body is mere extension (G IV 334/C II 487).[[14]](#footnote-14) So, we cannot assume that Spinozistic bodies resistD each other just because Cartesian bodies do. We can instead attribute such a view to him only if there is sufficient textual bases for doing so. Unfortunately, however, Spinoza writes far less about physics, especially dynamics, than either Descartes or Leibniz.[[15]](#footnote-15) This is not entirely surprising given the role of quantity in dynamics and Spinoza’s well-known doubts concerning the reliability of quantitative measurements of reality. [[16]](#footnote-16) In the mature works, much of his explicit theorizing about dynamics is limited to the so-called “Physical Digression” of Part Two of the *Ethics* and a few letters, e.g., his late letters to Tschirnhaus and his famous letter 32 to Oldenburg. The vast majority of his explicit theorizing about dynamics occurs in his early work, *Principles of Cartesian Philosophy* (PCP), which he wrote for the purposes of teaching Descartes’ system in a geometrical manner. The PCPis a difficult text to interpret. On the one hand, there are parts where it is clear that Spinoza is merely speaking for Descartes, and not for himself. This is clear from the fact that the PCP endorses standard Cartesian doctrines at a time when Spinoza likely rejects those very doctrines. To use an example that will come up later, Spinoza writes in the *Metaphysical Thoughts* (CM), appended to the PCP, that a body’s inertia is not distinct from the body itself, and yet in the PCP he follows Descartes in treating inertia as an inessential feature of bodies that results from God’s immutable will.[[17]](#footnote-17)On the other hand, there are parts of the PCP where Spinoza seems to add material not found in Descartes and which is at least consistent with Spinoza’s mature system. For example, while Descartes provides seven rules of impact in part two of his *Principles of Philosophy*, Spinoza provides additional rules and some of the overlapping rules are given new proofs.[[18]](#footnote-18) Importantly, the bodies of the PCP resistD each other. For example, a larger resting body can never be moved by a smaller body, no matter the latter’s quantity of motion: “If body A is completely at rest and a little larger than B, then no matter how fast B moves toward A, it will never move A, but be driven back by it in the opposite direction, without loss of motion” (G I 216/C I 287). The question is whether Spinoza believes this, or whether he is just proving Descartes’ fourth rule of impact. It is difficult to tell. On one hand, while we know that Spinoza rejects at least some of Descartes’ rules of impact—he twice tells Oldenburg that he rejects the sixth rule (G IV 166/C II 14; G IV 174a/C II 20)—he also claims that he doesn’t deny all the rules.[[19]](#footnote-19) This leaves open the possibility that he accepts the resistanceD-based fourth rule. On the other hand, in the PCP Spinoza proves all the Cartesian impact rules by citing God’s immutable will and its role in conserving total quantity of motion. This suggests he’s merely expositing the Cartesian rules. Of course, Spinoza might reject the Cartesian basis for the fourth rule—God’s immutable will and the conservation of quantity of motion that follows from it—while nonetheless retaining the fourth rule and/or the law of conservation. But we are mostly left to speculate on this point.[[20]](#footnote-20) So, that size plays a role in impact laws in the PCP is not evidence that Spinozistic bodies resistD change.

There is nonetheless *some* evidence, albeit limited, that Spinoza gives size a role to play in collision, and thus that bodies resistD each other. When speaking of the ‘simplest bodies’[[21]](#footnote-21) in the Physical Digression—those distinguished only by motion and rest—he claims that the outcomes of collisions grounded in the natures of the bodies involved in collision:

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, so that one and the same body may be moved differently according to differences in the nature of the bodies moving it. And conversely, different bodies may be moved differently by one and the same body. Axiom 1’’

This is no surprise—it is hard to imagine impact laws without granting this point. But Spinoza then adds that “[w]hen a body in motion strikes another which is at rest and cannot give way, then it is reflected, so that it continues to move…” (Axiom 2’’). Spinoza cannot here be denying that a moving body can put a resting body in motion, since earlier in the Digression he claims that this precise thing happens (Lemma 3). So, only *some* resting bodies remain at rest when a moving body or bodies collide with them. Which ones? The most natural, but by no means conclusive, answer is that bodies at rest which are *larger* will reflect the moving body at the angle Spinoza describes. Let me bolster that claim. At the point in question, Spinoza is still considering simplest bodies, which are distinguished only by speed and slowness. So, as a simplest body, the resting body cannot be larger than the colliding body. But if this simplest body is adjacent to a number of other simplest bodies, also at rest, then they function as one body:

When a number of bodies, whether of the same or different size, are so constrained by other bodies that they lie upon one another…we shall say that those bodies are united with one another and that they compose one body or individual (G II 99-100)

Since it is only in virtue of motion that simplest bodies are distinguished from one another (Lemma 1), a cluster of resting bodies will make up a larger body. This amounts to some evidence that size plays role in the resolution of collisions between Spinozistic bodies, but it is indirect and limited.

Let’s turn now the question of whether the inertial tendencies of bodies can ground resistanceD and thus provide evidence of resistanceL. The basis for attributing resistanceL to bodies will obviously only be as strong as the basis for attributing resistanceD to them, since the latter is a component of the former. But to address the question of resistanceL’s relation to inertiaspecifically, let us assume for the sake of argument that Spinozistic bodies resistD each other, i.e., that size (or some property other than motion and shape) plays a role in the resolution of collisions. Spinoza’s proofs of inertia nonetheless provide show that the inertial tendencies of Spinozistic bodies are not strong grounds for attributing resistanceL to those bodies, i.e., that inertia cannot explain resistance­D.

Spinoza offers proofs of inertia in at least three separate places: the PCP, the CM, and the Physical Digression. If we stick solely to the text of the PCP, the law of inertia is explained in the standard Cartesian way, namely by reference to immutable will (G I 201/C I 277). But in the other two proofs, Spinoza abandons the Cartesian basis (as one would expect). Spinoza’s aim in the CM proof is to prove not only the law of inertia, but also that inertia is not distinct from body itself. As he says, “for though the thing and its striving to preserve its being are distinguished by reason…they are not in any way really distinct” (G I 248/C I 314). That is, unlike Cartesian inertia which has its source in something external to body—a transcendent God’s will—Spinozistic inertia arises from the nature of body “of itself”. The proof reads:

Motion has a force of persevering in its state; this force is really nothing other than motion itself—that is, the nature of motion as such. For if I say that in this body, A, there is nothing but a certain quantity of motion, it follows clearly from this that, so long as I attend to A, I must always say that it is moving. For if I were to say that it was losing, of itself, its force of moving, I should necessarily have to attribute to it something else, besides what we have supposed in the hypothesis, through which it was losing its nature. G I 248/C I 314

The proof is straightforward. Spinoza here distinguishes between bodies as they are in themselves and as they are affected by external causes, including those involving other bodies.[[22]](#footnote-22) Spinoza claims that if a body is in motion, then unless an external cause is introduced, it will stay in motion. For this inference to be valid, Spinoza must rule out both that the body caused itself to slow down—as someone like Kepler thinks—and that the body slowed down for no reason whatsoever.[[23]](#footnote-23) It couldn’t have simply stopped moving for no reason whatsoever because everything, including every change in motion, requires a cause. This “no cause, no change” principle follows from the PSR, a principle most explicit in the Ethics. But it also appears in the CM. For example, Spinoza uses it in his proof of the necessity of each thing’s existence (G I 241/C I 307). So, if a body slows down, then it must have a cause of its doing so. That cause is either internal or external to the body slowing down, since all causes are internal or external to a thing (G I 241/C I 307). The cause cannot be internal to the body—that is, the body cannot cause itself to slow down—for the simple reason that in the transition from motion to rest the motion is destroyed, and nothing is the cause of its own destruction (G I 240/C I 306). So, bodies in motion tend to stay in motion unless an external cause slows them down.

The CM proof is in reality only a proof of half the law of inertia, since it fails to address the tendencies of bodies at rest. Spinoza completes the proof of the law of inertia in the Physical Digression: “a body in motion moves until it is determined by another body to rest; and a body at rest also remains at rest until it is determined to motion by another” (E2L3c). The proof mirrors the CM proof:

When I suppose, for example that a body A is at rest and I give no consideration to other moving bodies, I can assert nothing about body A but that it is at rest. Now if it should thereafter happen that body A is in motion, this surely could not have resulted from the fact that it was at rest; for from that fact nothing else could have followed than that body A should be at rest.

If a body is at rest, then it will stay at rest unless caused to move by an external body. The reasoning is the same as in the CM proof. To deny that bodies at rest tend to stay at rest would require either that bodies begin motion on their own or that a body can begin to move for no reason whatsoever. Spinoza denies the latter possibility when he says that “[f]or each thing there must be assigned a cause, or [sive] reason, both for its existence and for its non-existence’ (E1p11d). But his determinism blocks the former possibility: no finite thing can initiate a change on its own and body’s initiating its own motion would require doing just that. [[24]](#footnote-24) So, bodies at rest tend to stay at rest unless caused to move by a body external to them.

As an aside, it should be noted that, unlike Descartes, Spinoza does not in either of these proofs of inertia explicitly claim that inertial motion is rectilinear, or along straight lines.[[25]](#footnote-25) But there are at least two reasons to think he would accept rectilinear motion. First, the inertia proofs at least rule out any form of non-rectilinear motion that requires changes, e.g., zigzagging inertial motion. For suppose that a body A has a zigzagging motion, i.e., it changes its direction 90 degrees after certain intervals. Those changes cannot be produced by an external body, since we have set those to the side, as the proof says. But they also cannot be produced by body A either. For nothing involving directionality follows from the fact that body A is moving in a certain direction than that body A is moving in that direction.[[26]](#footnote-26) So, while the proof of inertia may not remove the possibility of perfectly curved inertial motion—if curved motion requires no changes—it eliminates the possibility of any form of directionality that requires changes. The second reason to attribute rectilinear inertia to Spinozistic bodies lies in its simplicity. [[27]](#footnote-27) Spinoza claims in a letter to Boyle that the simplest explanation of phenomena is the best explanation (C.I.174 / G IV 17/C I 174) and in his proof of rectilinear motion in the PCP (G I202-3/C I 277-8), Spinoza argues that rectilinear motion is simpler than curved motion. Its greater simplicity is not a quantitative simplicity, since—and Spinoza points this out—any straight line, like any curved line, can be imagined to be shorter. Rather, straight lines are simpler than curved lines in ‘essence’.[[28]](#footnote-28) If true, rectilinear inertia is the best explanation of the tendencies of bodies.

Returning to the proofs of inertia, Spinoza attempts to ground inertial tendencies in bodies themselves, rather than in God’s will. But his proofs of inertia are based in the fact that, first, every change requires a cause and, second, that bodies cannot produce changes on their own. [[29]](#footnote-29) None of this requires that size, or anything like it, play a role in collision. There is therefore a gap between Spinozistic inertia and the resistanceD of bodies. There are two ways to illustrate this gap. First, consider Leibniz’s early dynamics, as it appears in his *Theoria motus abstracti* (1671). It grants that i) there is no change without a cause, ii) inertia is not imposed by God’s will, and iii) nothing besides motion and shape plays a role in the impact laws. [[30]](#footnote-30) So, the mere fact that inertia is intrinsic to body does not entail, or even suggest, that body displays anything like the ‘repugnance’ to motion that is manifested in resistanceD. Second, the inertia proofs can be used to prove the inertia of all sorts of properties. For instance, they can be used to prove that no body changes its distance from a given object without an external cause—after all, there are no changes without a cause and bodies are not sufficient to cause changes in themselves, including changes that could result in a change in distance. That the inertia proofs can be used to demonstrate “distance inertia” is explained by the fact that they rely exclusively on the general principles that changes need causes and nothing is the cause of its own change. That they rely only on these principles should come as no surprise if we take into account the fact that Spinoza’s proofs are virtual copies of Hobbes’ proof of inertia and that Hobbes’ proof is just an application of the Principle of Sufficient Reason:

For suppose that some Finite Body exist, and be at Rest, and that all Space besides be Empty; if now this Body begin to be Moved, it will certainly be Moved some way; Seeing therefore there was nothing in that Body which did not dispose it to Rest, the reason why it is Moved this way is in something out of it; and in like manner, if it had been Moved any other way, the reason of Motion that way had also been in something out of it; but seeing it was supposed that Nothing is out of it, the reason of its Motion one way would be the same with the reason of its Motion every other way; wherefore it would be Moved alike all wayes at once, which is impossible. EW i. 115

Leibniz’s criticism of de Volder therefore seems apt here: the Spinozistic law of inertia seems to be a specific instance of more general metaphysical principles and not a feature of bodies having anything to do with a repugnance to motion.[[31]](#footnote-31) So, even if Spinoza has established the existence of inertia without resorting to the will of God, inertia cannot ground resistanceD, and so it does not serve as an adequate basis for attributing resistanceL to Spinozistic bodies. To sum up this section: the basis for attributing resistanceD to bodies is minimal, and even if they offer it, there is little reason to ground it in the inertial tendencies of bodies.

**III. Conatus**

Let’s turn now to *conatus* as a potential source of resistance. The relationship between inertia and *conatus* in Spinoza’s system is a controversial topic. On the one hand, as is well known, Spinoza’s statement of the *conatus* doctrineis almost a verbatim re-statement of the Cartesian law of inertia: “each thing, as far as it can by its own power, strives to persevere in its being” (E3p6). In addition, his proof of the *conatus* doctrine relies on the no self-destruction thesis—that no thing is the cause of its own destruction—a thesis that Spinoza implicitly uses in his proof of inertia. [[32]](#footnote-32) This would suggest that a thing’s *conatus* is nothing over and above its inertial tendencies. On the other hand, Spinoza says enough to cast doubt on the equivalence of inertia and *conatus.* Most importantly, hesays in the Physical Digression that *composite* individuals persist not by maintaining their simple states of motion or rest or by their parts having the same states of motion, but by maintaining the same overall relation between the parts, namely their ratio of motion to rest (E2L4-7). A simple state of motion and rest is a thing’s speed (in either its scalar or vector forms). So, a composite body traveling at five miles per hour has a simple state of motion of five miles per hour (or five miles per hour westward). A ration of motion to rest, however, involves the further information about how a composite body’s parts are moving relative not merely to external bodies, but to each other. So, two objects traveling at the same speed might have different ratios of motion to rest, because one body’s component parts are all moving in unison and in the other half the bodies are, in addition to moving relative to external bodies, also moving relative to the other half of the component bodies. If the *conatus* of composite individuals is a striving to persevere that is represented by a perseverance in ratio of motion to rest, rather than by states of motion, then that *conatus* is distinct from their inertial tendencies. [[33]](#footnote-33) After all, a thing’s simple states of motion and rest might change without the ratio changing. For example, a person might slow down or speed up even that their ratio doesn’t change (with the speed change being a change in which parts are moving).

I do not want to take a stand on whether *conatus* is an instance of inertia or not. That is beyond the scope of this paper. Rather, in this section I will examine the question of whether the *conatus* of composite individuals, conceived of as a tendency distinct from their inertia, can ground resistance. It is important to examine *conatus* as a source of resistance because itis the place that many commentators locate resistance in Spinozistic bodies. For example, Garber writes:

I don’t see how we can ignore this apparently positive striving (conatus) for preservation, and positive opposition to that which leads to the destruction of an individual, or reduce it to the fact that an individual will persist in its existence unless it is destroyed by something external. 1994: 61

That is, the *conatus* of Spinozistic bodies does not seem like it can be reduced to something as sparse as the tendency for a thing to retain its states unless caused to change, i.e., the tendency that Leibniz admits merely extended substances have despite their lack of resistanceL. This impression is only natural, given the fact that Spinoza says that a thing’s *conatus* goes hand-in-hand with its *opposition* to that which would otherwise take its existence away:

[a]nd no thing has anything in itself by which it can be destroyed, *or* which takes its existence away (by E3p4). On the contrary, it is *opposed* to everything which can take its existence away (by E3p5)

Nevertheless, I will argue in this section that the attempt to find resistance, of either sort, in *conatus* fails. First, there are three problems with identifying a ratio-based property that could play the role that size plays in Cartesian physics. So, the evidence that *conatus* involves resistanceD is minimal. Second, the “opposition” that *conatus* involves can be traced to the impossibility of self-destruction and insofar as the impossibility of self-destruction is compatible with bodies not resistingD each other, *conatus* does not obviously point to the resistanceL of Spinozistic bodies either.

Let’s turn first to the issue of resistanceD. Can a thing’s *conatus* serve as evidence of the resistanceD of bodies? It can do so only if the collisions between composite bodies are resolved on the basis of some features other than their speed and shape. Spinoza does not explicitly address the question of impact laws between composites bodies, but there is some indirect evidence that ratios of motion to rest play some role in the resolution of collisions. The evidence comes from the fact that Spinoza thinks the ratio of motion to rest in the universe on the whole is conserved. For instance, he says in Letter 32 that he writes that “the same ratio of motion to rest [is] always preserved in all [bodies] at once” (G IV 173a/C II 19).[[34]](#footnote-34) This is important because Descartes uses facts about the law of conservation—that total quantity of motion is conserved—to infer that quantity of motion is conserved in each collision (II.42). If the same inference is open to Spinoza, then the fact that he thinks the universe’s ratio of motion to rest is conserved is evidence that he thinks the ration is conserved in each collision.[[35]](#footnote-35) This would give something other than shape and speed a role to play in the resolution of collisions. Nevertheless, there three problems with giving ratio of motion to rest a role in collision. They appear in order of what I consider to be increasing seriousness.

First, it’s not clear what we’re claiming when we claim that ratio of motion plays a role in the resolution of collision. When Descartes says that size plays a role in the impact laws, he means that more force (quantity of motion) is required to move a larger body at rest, where force is the product of size and speed. But there are several options for how to give the ratio of motion to rest a role to play in collisions. Perhaps a *bigger* ratio in a given body makes it more difficult to move. Or a *smaller* ratio makes it more difficult to move. Or perhaps a more *uniform* ratio—a ratio that is present in the parts as much as the whole—makes it more difficult to move. Or a ratio that is less easily disrupted, i.e. a ratio which is a counterpart to something like cohesion. But there is simply no direct textual evidence in Spinoza’s for any of these. So, even if we assume that the ratio of motion to rest is conserved in each collision, there are too many things that this could mean, which suggests a rather underdeveloped concept.

Second, giving the ratio of motion to rest a role to play in collision presents a dilemma for Spinoza’s physics. As we saw in the previous section, there is *some* evidence that a simple body cannot move a larger body at rest. Here is the dilemma. Either this role of size in collision is limited to collisions involving at least one simple body or it extends to all collisions. Suppose it extends to all collisions. Since ratio of motion to rest is not a function of size—small and large bodies can possess the same ratios—there would need to be some way to subsume both size and ratio of motion to rest under one sets of impact law. After all, size and ratios can conflict—one body can be bigger while the other possesses the more resistant ratio, whatever that might be—so there would need to be a law which balanced these competing roles. But there is simply no evidence of any such super-consideration in Spinoza. So, suppose instead that size plays a role in collision only when at least one body is simple. That is, some collisions are governed by size-based impact laws (those involving at least one free-standing simple body), while others are governed by ratio-based impact laws (those involving composite bodies). This would amount to a bifurcation of laws in the physical world. Insofar as Spinoza thinks that the entire physical universe is governed by the same set of laws (E3pref), this bifurcation of impact laws seems implausible as an interpretation of Spinoza. So, the evidence from the law of conservation that ratio of motion to rest plays a role in collision seems at odds with the evidence, albeit limited, that size plays a role in collision.

The third problem for giving the ratio of motion to rest a role to play in collision pertains the Spinoza’s claims about the priority of parts to wholes.[[36]](#footnote-36) Spinoza claims in Letter 35, among other places, that “component parts must be prior in nature and knowledge to what is composed of them” (G IV 181/C II 27). Applied to bodies, this means that we can understand a composite body only by understanding its parts. In the context of collision, this would mean that we can understand collisions between composite bodies by understanding the behavior of simple bodies during those collisions. As Spinoza says in the Physical Digression, “the individuals composing the human body, and *consequently the human body itself*, are affected by external bodies in very many ways” (Postulate 3, my emphasis).[[37]](#footnote-37) But simple bodies, whether they are interpreted as real minima or as mere theoretical constructs, do not have ratios of motion to rest. Rather, the only thing that distinguishes them is motion and rest (A2’’). So, their collisions are not resolved on the basis of anything involving ratios of motion to rest. But if their behavior in collision determines the behavior during collision of the composite bodies they make up, then it doesn’t look like the ratio of motion to rest can play a role in the resolution of collisions of composite bodies.[[38]](#footnote-38) So, though there is some evidence from the law of conservation that ratio of motion to rest plays a role in the resolution of collisions between composite bodies, it is near impossible to explain how; the evidence in question conflicts with the evidence that size plays a role in collisions; and that evidence also conflicts with Spinoza’s thesis that parts are prior to wholes. In sum, the evidence of resistanceD in *conatus* is both meager and problematic.

Let’s turn now to resistanceL. The *conatus* doctrine provides evidence of resistanceL only if a body’s *conatus* plausiblygrounds its resistanceD. As in the context of inertia, the case for attributing resistanceL to bodies on the basis of *conatus* is only as strong as the basis for attributing resistanceD to them. But suppose for the sake of argument that there are sufficient grounds for attributing resistanceD to bodies. It doesn’t follow that their resistanceD comes from their *conatus.*In fact, there are reasons to doubt that *conatus* could ground resistanceD, and thus that it could constitute evidence of resistanceL. The reasons for doubt are straightforward. ResistanceL is supposed to be that feature of a thing which *opposes* that which takes its existence away. This was the whole motivation for looking to *conatus* as a basis of resistance. But when Spinoza claims in the proof of the *conatus* doctrine that things, including bodies, oppose that which would destroy them, he cites E3p5. It and its demonstration read:

Things are of a contrary nature, that is, cannot be in the same subject, insofar as one can destroy the other. For if they could agree with one another, or be in the same subject at once, then there could be something in the same subject which could destroy it, which (by E3p4) is absurd.

Spinoza thinks, for better or worse, that E3p5 follows directly from E3p4. [[39]](#footnote-39) E3p4 is the doctrine which says that no thing is the cause of its own destruction. Spinoza proves this using two general metaphysical principles: the principle that a thing’s destruction needs a cause and the principle that a thing’s definition involves only an assertion of its existence. Both these principles just the kinds of metaphysical necessities that Leibniz argues cannot, by themselves, ground a body’s resistance to change. In other words, it is consistent with a body’s obeying those principles that not resist the changes it undergoes, in either sense of resistance. Insofar as the opposition to change that *conatus* involvescomes from the doctrine of the impossibility of self-destruction, it does not look like the opposition that’s relevant to resistance. So even if the law of conservation provides evidence of resistanceD, that is not evidence that it is due to body’s *conatus*. Hence, *conatus* is not evidence of resistanceL.

**IV. Metaphysical Resistance**

I’ve argued that neither Spinoza’s views on bodily inertia nor his views on bodily *conatus* provide much evidence that bodies resist the changes they undergo, in either the merely dynamical sense of resistance or on the more robust Leibnizian sense. Nonetheless, one might wonder whether there is a third kind of resistance that Spinozistic bodies offer. I have in mind a purely metaphysical concept of resistance, i.e., a concept that applies to a system independently of the dynamical behavior of the things that offer it. Some commentators seem to attribute purely metaphysical resistance to Spinozistic bodies, insofar as they talk about resistance without talking about dynamics. For example, Viljanen (2008: 107) argues that striving bodies are determinate expressions of God’s causal power and that it is part and parcel of being a *cause* that a thing resists that which prevents its continued causal influence. Della Rocca (2008: 151) likewise argues that bodies have concepts which express what they would do in absence of obstacles and the continued existence of these concepts in the face of obstacles just is resistance. What these interpretations—and others like them—have in common is the idea that a body is still *active* when it undergoes change and that is constant activity is a form of resistance. For example, a ball that ricochets off a wall resists the change in its velocity in virtue of its continued activity. These interpretations echo Leibniz’s early view that “a resisting thing is that which acts on that by which it is acted upon” (A6.4.1394/RA 237). The only difference is that these purely metaphysical interpretations of resistance drop the dynamical condition present in Leibniz’s concept of resistance. In other words, they skip the part where the activity explains why something other than shape and motion plays a role in resistance. Call this third kind of resistance ‘resistanceM’. The point of this section is to argue that it is not a particularly meaningful concept of resistance.

At least two arguments can be made that resistanceM is not a particularly meaningful concept of *resistance.* First, bodies are *not* absolutely active when their states are caused to change by other bodies. Spinoza defines activity in terms of what can be understood *solely* through the nature of the agent (E3d1, E3d2). So, bodies whose states are caused to change due to other bodies are not adequate causes of those changes. Of course, bodies that are caused to change are still *partially* active insofar as their behavior is partly explained through their own natures (Axiom 2’’). For example, that the tennis ball bounces off the wall rather than breaking through it is a fact that must be understood partly in terms of the nature of the tennis ball. Once the activity of bodies is reduced to partial activity, the claim that bodies resist change in virtue of their activity begins to look like nothing more than the claim that impact laws take account of the natures of the bodies in impact. But this is a claim that any view of impact laws would grant. It is hard to even imagine the point of giving impact laws if those laws didn’t take into account what the bodies impacting each other are like. So, since the attribution of resistance to bodies is a non-trivial claim, it is not clear that resistanceM is a meaningful concept of resistance.[[40]](#footnote-40)

Second, the whole point of talking about the resistance of bodies is to contrast their resistance with the mere conditional tendencies that everything has as a matter of metaphysical necessity. That is, everything remains in its state unless caused to change and resistance is supposed to be that *extra thing* that is true of a body when it undergoes change. ResistanceD and resistanceL both point to that extra thing by pointing to its manifestation in dynamics, e.g., by pointing to the fact that larger bodies require more force to be moved. So, if resistanceM is a meaningful concept of *resistance*, then it must point to something over and above the conditional tendencies of bodies which either is the resistance or is at least a sign of it. But since resistance­M ignores dynamics, it appears to give up on that which makes resistance worth talking about in the first place, viz. the ways in which bodies do not merely change when caused to change. Furthermore, insofar as the ‘opposition’ that Spinoza attributes to bodies on the basis of their *conatus* can be traced back to the fact that no thing can destroy itself (as we saw last section), that opposition appears to be just a manifestation of the conditional tendencies that fall out of the Principle of Sufficient Reason, e.g., the tendencies things have not to cause their own destruction. This isn’t to deny that advocates of resistanceM could potentially point to some feature of bodies above and beyond their conditional tendencies which amounts to, or is a sign of, their resistanceM. Rather, the point is that they *must* point to some such feature in order to make resistanceM meaningful and that the concept risks collapsing into resistanceL if the feature is dynamical.

Before I move to the next section, it is important to consider a view of resistance that is metaphysical, but which ought to be treated separately from what has been discussed so far. We have been discussing resistance as a phenomenon that is tied to principles of persistence, whether conceived of as simple inertia or as the non-inertial striving associated with *conatus*. The same is true of resistanceM: we have been discussing it as what a body offers during change. But it’s possible to conceive of resistance involving something other than persistence. For instance, Shein (2018) claims that “the genuine force or opposition for Spinoza is derived not from the principle of persistence but rather from Extension itself being active” (442). In what sense does resistance arise from the activity of Extension? Shein’s basic idea is that a body’s resistance goes hand-in-hand with its finitude and finitude is not a feature intrinsic to individual bodies, but instead a feature that exists only in networks of bodies.[[41]](#footnote-41) Shein arrives at this picture in the following way. Bodies are finite in that there are always other bodies which can limit them (E1d2). But Spinoza famously says that finitude is nothingness (E1p8s, Letter 50). So, if bodies exist, then they cannot be *completely* finite. After all, if they were completely finite, then they would be nothing. Rather, they are infinite *in themselves*: “Considering what is internal to a body, i.e., disregarding its external determination, culminates in conceiving infinite Extension” (445). Since they are infinite considered in themselves, their finitude consists only in the fact that there are *other* bodies that can limit them: “If we understand bodies in and of themselves as extending ad infinitum, i.e., being essentially extended things, it is also clear why their limitation must necessarily be due to something external to them” (ibid.) That is, there are no intrinsically finite bodies. Resistance exists at the point where a body’s infinitude confronts that other body, where it is limited by it but fails to collapse into nothing as a result: “for the pebble to be a thing at all, it must implicitly involve an infinite nature: its striving to extend ad infinitum, that is, its active determining of the totality of bodies or its resistance of the impingement of the surrounding bodies” (448). Insofar as resistance is based in finitude and finitude is a feature of networks of bodies, so too is resistance a feature most fundamentally of networks of bodies and not of individual bodies and their tendencies to persist.

This network view of resistanceM has the virtue that it can point to some difference that resistanceM makes: it grounds the individuation of bodies.[[42]](#footnote-42) That is, the existence of individual bodies can be conceived only within a network of other bodies, all of which limit each other—it is at these lines of individuation that resistanceM exists. Nevertheless, there is a reason to question Shein’s account, at least as a basis for attributing resistance to Spinoza’s bodies. Resistance is something that comes in degrees—one body can resist *more* or *less* than another. But resistance, on Shein’s account, is not something that could come in degrees. [[43]](#footnote-43) There is simply no place to put degrees of resistance without undermining the core claim of her account, viz. that a finite body can be characterized only as part of a network of bodies. Here’s why. All bodies, on her account, are equally infinite (445). That is, what makes a thing a *body* is its extension ad infinitum. So, if one body resists more than another—e.g., if my couch resists my attempts to move it more than my mug does—then the difference must reside in their respective degrees of finitude. But on Shein’s account no body is finite *in itelf*. Rather, it is finite only by being limited by something more powerful. But this is the problem: how is one body *more* powerful than another if neither is finite in themselves and both are infinite in their activity? It would seem that differences in bodies need to be independently characterizable, event if all at once, in order to explain the different degrees to which they limit each other. But their differences are not characterizable except insofar as they are limited by other bodies.[[44]](#footnote-44) So, Shein’s account seems unable to make sense of differences in the extent to which bodies resist one another. Perhaps this is Spinoza’s problem, and not a problem with Shein’s account of Spinoza. Nevertheless, it is not evidence of a clear concept of resistance­M in Spinoza physics.

**IV. Mental Resistance**

The evidence for physical resistance in Spinoza’s system is inconclusive. But Spinoza famously says in Letter 27 that “Ethics…as everyone knows, must be founded on metaphysics and physics” (G IV 160/C I 395). That is, it is part of Spinoza’s method to explain facts pertaining to ethics by looking at facts pertaining to physics, or to facts pertaining to metaphysics more generally. This suggests an indirect strategy for determining whether Spinozistic bodies offer resistance: see if mental entities, such as ideas,offer any resistance and then transfer the verdict back to the physical realm.[[45]](#footnote-45) Such a strategy is possible because of the structural isomorphism that exists between the physical and mental worlds of Spinoza’s universe:

The order and connection of things is the same as the order and connection of ideas…whether we conceive nature under the attribute of Extension, or under the attribute of Thought, or under any other attribute, we shall find one and the same order, or one and the same connection of causes. E2p7

This isomorphism, of course, does not mean that all features of a given realm will be present in the other realm. Some features are uniquely mental or uniquely physical—the idea of distinct realms is pointless if they’re qualitatively identical.[[46]](#footnote-46) Nonetheless, Spinoza regularly uses structural facts about one realm as a guide to facts about the other realm. For example, he uses the powers of the body as a guide to determining the powers of the mind: “to determine what is the difference between the human mind and the others, and how it surpasses them, it is necessary for us, as we have said to know the nature of its object, that is, of the human body” (E2p13s). He also uses this kind of cross-attribute inference in his central discussion of *conatus*: “whatever can destroy our body cannot be in it (by E3p5), and so the idea of this thing cannot be in God insofar as he has an idea of our body” (3p10d).[[47]](#footnote-47)

Importantly, Spinoza *does* talk as if ideas resist each other. For example, he says that “an affect cannot be restrained or taken away except by an affect opposite to, and stronger than, the affect to be restrained (E4p7). [[48]](#footnote-48) But these kinds of passages are not enough on their own to attribute something like mental resistance to ideas. After all, we already know that opposition talk might turn out just to be a way to refer to the conditional tendencies that fall out of general metaphysical principles, including the tendency a thing has not to destroy itself. So, we need to know whether mental opposition is resistance in more than a metaphorical sense. What kind of resistance should we be looking for? ResistanceM, I’ve argued, is not a helpful concept of resistance, and resistanceL already involves resistanceD. So, in order to tell whether this opposition between ideas is resistance or not, we at least need to articulate the mental version to resistanceD and see if ideas offer it. ResistanceD is a phenomenon that manifests itself when a thing is caused to change. Physical change in finite bodies is brought about through collision: “a body which moves or is at rest must be determined to motion or rest by another body, which has also been determined to motion or rest by another, and that again by another, and so on, to infinity” (E2lem3). So, mental resistanceD will occur in “mental collisions”. But what are mental collisions, other than the place where finite mental change occurs? Physical collisions are the site of contrarieties—e.g., that of bodies moving east and west colliding—and their resolution is the removal of the contrariety. In fact, the changes that collisions cause in bodies—that is, all their changes—never exceed what is required to remove the contrariety. This follows from Spinoza’s ‘Principle of Least Modal Mutation”: “when the modes of a body are forced to suffer variation, that variation will always be the least there can be” (G I 211/C I 283). [[49]](#footnote-49) So, mental resistance will occur during mental ‘collision,’ and mental collision is the site of mental contrarieties and the changes requires to remove them. Once we locate mental collision, we can begin to look for mental resistance.

Now that we know that mental collision involves mental contrariety and its removal, it is pretty easy to find where mental collisions occur. Spinoza claims that the will/intellect serve as the counterpart to motion and rest:

will and intellect are related to God’s nature as motion and rest are…And although from a given will, or intellect, infinitely many things may follow, God cannot be said, on that account, to act from freedom of the will, any more than he can be said to act from freedom of motion and rest on the account of those things that follow from motion and rest. E1p32s2

He confirms this identification when he cites the will as the cause of finite changes in the mental realm (just as motion is the cause of finite physical changes) : “[i]n the mind there is no absolute, or free, will, but the mind is determined to will this or that by a cause which is also determined by another, and this by another, and this again by another, and so to infinity” (E2p48). [[50]](#footnote-50) Since motion and rest are the site of physical collisions, “mental collision” occurs when a set of particular volitions are incompatible with one another. Two volitions are incompatible with one another when it is impossible for the subject of the volitions to act on both volitions simultaneously. Examples include cases of akrasia (E4p17), perceptual illusion (E4p1d), and emotional vacillation (E3p38).

Now that we know where mental collision occurs, we need to see if it involves any mental resistanceD. In order to tell whether it involve any mental resistanceD, i.e., whether there is a property of ideas such that more of it makes it more difficult to win an impact contest with the idea which has it. Spinoza takes as an axiom that singular things, including ideas, differ in their degrees of power: “there is no singular thing in nature than which there is not another more powerful and stronger” (E4a1). So, if there is a property which grounds mental resistanceD­, it will feature in an idea’s power. After all, resistance comes in degrees and degrees of power determine when an idea wins an impact contest. So far the latter point is trivial: what would force be if it didn’t at least win impact contests against things with less of it? The challenge is to figure out what force involves such that more of the thing it involves entails more force. Spinoza of course knows this and defines power in terms of being an adequate cause (E4d8): the power of ideas is a function of their degree of adequacy, i.e., the degree to which their effects can be understood through their nature alone. More specifically, it is a function of the *relative* difference in adequacy between the competing ideas: “the force and growth of any passion, and its perseverance in existing, are not defined by the power by which we strive to persevere in existing, but by the power of an external cause compared to our own” (E4p5). What results is a picture of the mental impact contest as a comparison between the relative adequacy of ideas. When two ideas conflict, that idea wins which is more adequate, i.e., which is more immune from outside influence.

This is a promising picture of mental collision, for at least two reasons. First, Spinoza is clear that impact contests are determined by intrinsic features of ideas rather than their truth (E4p14) and adequacy is an intrinsic feature of ideas (E2d4). Second, insofar as an idea’s adequacy amounts to its immunity to outside influence—given how adequacy is defined—the adequacy of an idea goes hand in hand with a difficulty for competing ideas to affect its production of effects. Adequacy is therefore a property of ideas such that more of it entails that more is required to defeat it in an impact contest. In other words, adequacy plays the role that size plays in Cartesian and Leibnizian physics. As such, adequacy provides evidence of mental resistanceD. This isn’t to say that (relatively) adequate ideas are not influenced by other ideas. Spinoza is clear that (relatively) adequate ideas are part of nature and so influenced by other ideas (E4p2). The point is rather that (relatively) adequate ideas, by their very nature, entail a ‘repugnance’ to influence in a way reminiscent of the way a large Cartesian body is repugnant to motion. They are akin to large bodies that come often in contact with other bodies, but which are moved only some of the time, and only a little, by them. Furthermore, if adequacy is a sign of mental resistanceD, then we also have evidence of mental resistanceL if we can trace mental resistanceD to some intrinsic features of ideas. It is plausible that we can. Adequate ideas are true ideas considered without relation to their objects (E2d4). Furthermore, all ideas are, insofar as they express God’s nature, true (E2p32, E2p34), and so also adequate. That is, an idea is adequate by its nature. So, the nature of ideas as ideas—that is, as expressions of God’s nature—explains why they manifest resitanceD. Hence, ideas can be said to resistL change.[[51]](#footnote-51)

Let’s return to Spinoza’s physics. What would resistance look like in the physical realm if we translated adequacy into a physical concept? To answer this question, we need to know the physical counterpart to adequacy. It helps to look at the relationship between mental collision and disunity. Mental collision is mental conflict and mental conflict goes hand in hand with the mind’s failing to be one thing: “things are of a contrary nature, that is, cannot be in the same subject, insofar as one can destroy the other” (E3p5). Furthermore, the more adequate a mind’s ideas are, the less it will be in conflict with itself (E5p10). It follows that the more adequate a mind’s ideas are, the more it will be one thing. So, the counterpart to adequacy is whatever it is in the physical realm which corresponds to a collection of bodies being one body. As we’ve already seen, a collection of bodies is one thing insofar those bodies communicate motion and rest to one another in a fixed manner. Since mental resistance consists in the fact that more adequacy of an idea requires more force to defeat it in an impact contest, physical resistance would seem to consist in the fact that the more fixed the manner in which a collection of bodies communicates motion and rest to each other, the more force is required to overcome that collection in an impact contest. In other words, a body whose kinetic communication is fixed to degree *n* can be defeated in an impact contest only by a body whose kinetic communication is fixed to a degree greater than *n*. What does it mean to win an impact contest here? We can give a functional answer: to win an impact contest means to retain whatever properties the body had which contributed to the set of incompatible physical properties which constituted the collision. The property which contributed to the contrariety could be the overall motion of the body—e.g., its speed. Or it could be the way it affects the ratio of motion to rest of some third body. There is no specific form the contrariety needs to take. So, even though Spinoza makes little attempt to formulate impact laws for composite bodies, we can begin to formulate functionalist impact laws by considering the nature of adequacy and general facts about collision (namely that is it is the site of contrarieties and that bodies change only to the extent necessary to remove the contrariety).

Now for the bad news. Even though adequacy provides evidence of resistance in Spinoza, that account of resistance is strikingly incomplete, in at least two ways. First, consider the fact that the more adequate an idea is, the more adequate a competing idea needs to be to overcome it. After all, Spinoza defines an idea’s force in terms of its adequacy and force is overcome only by a greater force. So, we should expect that an idea with degree of adequacy *n* can be defeated in an impact contest, other things being equal, only by an idea with a degree of adequacy greater than *n*.[[52]](#footnote-52) But this expectation is problematic, for the simple reason that adequate ideas don’t conflict. After all, adequate ideas are true and truth never conflicts with truth (E2p34). So, Spinoza needs either to locate the force of *inadequate* ideas in something other than adequacy, thus bifurcating his account of force, or explain how inadequate ideas can have force that arises from their adequacy. The latter seems the more promising route, because whether an idea is adequate or not depends on which mind it is conceived as being a part of.[[53]](#footnote-53) An idea might get its power from the fact that it is adequate relative to mind A, but enter into an impact contest because it is inadequate relative to mind B. In any event, more needs to be said to fill this gap in the adequacy account of resistance.

The second problem is more serious. If adequacy grounds the force of ideas, then it needs to do two things simultaneously: first, explain why adequate ideas are harder to move and, second, explain why adequate ideas are more capable *of moving competing ideas*. It seems up to the first task: adequate ideas are more immune to outside influence, and so more difficult to move. But adequacy seems insufficient for the second task: whether a thing is immune to outside influence is a distinct issue from that of what it can do. The former is a negative concept, whereas the latter is positive, and Spinoza has given us no reason to think that a greater immunity from outside influence entails a greater ability to affect outside things. In fact, there is evidence that he is running the two concepts together. For example, he infers from the fact that God is self-caused that infinite things follow from his nature (E1p16d).[[54]](#footnote-54) Leibniz avoids this problem in his mature physics through a division of labor. A body’s resistance force has its origins in its passive powers, which themselves are grounded in the body’s primary matter, whereas a body’s active powers are based in the body’s form or entelechy:

not everything that happens in our body is to be derived from our entelechy, even if it agrees with it. Without a doubt, entelechy, i.e., force, i.e., activity differs from resistance, i.e., passivity. You could take the former for form and the latter for primary matter. 367

But Spinoza wants to give a unified account of force, for better or worse—power is simply power. Absent a link between the immunity of an adequate idea and its greater ability to produce effects, he cannot explain how the force of adequate idea defeats competing ideas. His concept of resistance is therefore incomplete.

**V. Conclusion**

I’ve argued that there is little direct evidence of physical resistance in Spinoza’s work, insofar as neither facts about inertia nor facts about *conatus* explain why some bodies are more difficult to move. I also argued that there is indirect evidence of physical resistance in the phenomenon of mental resistance, but that the concept of mental resistance present in Spinoza is at best incomplete. Adequate ideas are harder to move than inadequate ideas, but Spinoza leaves unexplained how this resistance to change gives rise to an ability to effect change in other ideas. Nonetheless, if facts about bodies can be legitimately inferred on the basis of facts about ideas, then bodies do not merely persist unless caused to change but also resist that change.

Bibliography

Adler, Jacob. “Spinoza's Physical Philosophy.” Archiv für Geschichte der Philosophie 78 (3) (1996): 253–276.

Allison, Henry. *Benedict de Spinoza: An Introduction*. New Haven: Yale University Press, 1987.

Bennett, Jonathan. *A Study of Spinoza's Ethics*. Indianapolis: Hackett Publishing, 1984.

Buyse, Filip. “Spinoza On Conatus, Inertia, and the Impossibility Of Self-Destruction.” *Societate si politica* 10 (2) (2016): 115-134.

Cover, Jan. “Spinoza’s Extended Substance.” *New Essays on the Rationalists*, (eds.) Rocco J. Gennaro and Charles Huenemann. Oxford**: Oxford University Press, 2003: 105-33.**

Curley, Edwin. *Behind the Geometrical Method: A Reading of Spinoza's Ethics.* Princeton: Princeton University Press, 1998.

Della Rocca, Michael. *Representation and the Mind-Body Problem in Spinoza*. Oxford: Oxford University Press, 1996.

---. *Spinoza*. New York: Routledge, 2008.

Descartes, R. *The Philosophical Writings of Descartes.* Translated by John Cottingham, Robert Stoothoff and Dougald Murdoch. Cambridge Cambridgeshire; New York: Cambridge University Press, 1984.

Gabbey, Alan. “Force and inertia in the seventeenth century: Descartes and Newton.” In Stephen Gaukroger (ed.), *Descartes: Philosophy, Mathematics and Physics*. Sussex: Harvester Press, 1980. pp. 230—320

---. “Force and Inertia in Seventeenth-Century Dynamics*,” Studies in History and Philosophy of Science* 2 (1971): 1–68.

---. “Spinoza's Natural Science and Methodology,” in *The Cambridge Companion to Spinoza*, D. Garrett (ed). Cambridge, New York: Cambridge University Press, 1996.

Garber, Daniel. *Leibniz: Body, Substance, Monad*. New York: Oxford University Press, 2009.

---. “Leibniz: Physics and Philosophy” in Nicholas Jolley, ed., *The Cambridge Companion to Leibniz*, New York: Cambridge University Press, 1995

---. *Descartes’ Metaphysical Physics*. Chicago: University of Chicago Press, 1992.

---. “Descartes and Spinoza on Persistence and Conatus.” *Studia Spinozana* 10 (1994): 43-67.

Garrett, Don. “Spinoza's Theory of Metaphysical Individuation,” in *Individuation in Early Modern Philosophy: Descartes to Kant*. Albany: State University of New York, 1994.

---. “Spinoza's Conatus Argument,” in *Spinoza: Metaphysical Themes*, J. a. K. Biro, Olli. Oxford, New York: Oxford University Press, 2003.

Grey, John. “Spinoza on Composition, Causation, and the Mind’s Eternity.” British Journal for the History of Philosophy 22 (2014): 446–67

Gueroult, Martial. “The metaphysics and physics of force in Descartes.” In Stephen Gaukroger (ed.), *Descartes: Philosophy, Mathematics and Physics*. Sussex: Harvester Press, 1980. pp. 196--229

Guigon, Ghislain. “Spinoza on Composition and Priority.” In Spinoza on Monism, edited by Philip Goff. London: Palgrave Macmillan, 2012. 183-205.

Hassing, Richard. “The Use and Non-Use of Physics in Spinoza's Ethics.” *The Southwestern Journal of Philosophy* 11 (2) (1980): 41-70

Hatfield, Gary. “Force (God) in Descartes’ Physics.” *Studies in History and Philosophy of Science* Part A 10 (2) (1979): 113-140

Klever, Wim. “Moles in Motu: Principles in Spinoza’s Physics.” Studia Spinozana 4 (1988): 165–93.

---. “Inertia as an effect in Spinoza's works (with an excursus on a misleading comma.” In C. Hermanin & L. Simonutti, *La Centralita del Dubbio, vol 2.* FirenzeL Olschki: 2011. 599-611

Lachterman, David. “The Physics of Spinoza's Ethics”. *Southwest Journal of Philosophy*, 8 (3) (1977): 71– 111.

Lecrivain, Andre. “Spinoza and Cartesian Mechanics.” In Marjorie Grene and Debra Nails (eds), *Spinoza and the Sciences*. Dodrecht: D. Reidel Publishing Company, 1986: 15-60.

Lin, Martin. “Spinoza and the Mark of the Mental.” In Yitzhak Melamed (ed.), *Cambridge Critical Guide to Spinoza*. Cambridge: Cambridge University Press, 2017. 82-101.

Lodge, Paul (ed.). *The Leibniz-De Volder Correspondence: With Selections from the Correspondence Between Leibniz and Johann Bernoulli*. Trans. Paul Lodge. New Haven: Yale University Press, 2013.

Manning, R., 2012. “Spinoza's Physical Theory,” *The Stanford Encyclopedia of Philosophy.* Edward N. Zalta (ed.), URL <http://plato.stanford.edu/archives/spr2012/entries/spinoza-physics/>.

Matson, Wallace. “Death and destruction in Spinoza's ethics”. *Inquiry* 20 (1977): 403 – 417.

Mátyási, Robert. “Spinoza on Composition, Monism, and Beings of Reason.” *Journal of Modern Philosophy*, 2(1) 2020. Online.

Melamed, Yitzhak. “The Exact Science of Non-Beings: Spinoza's View of Mathematics.” *Iyyun - The Jerusalem Philosophical Quarterly* 49 (2000): 3-22.

Peterman, Alison., 2015. “Spinoza on Extension,” *Philosophers’ Imprint* 15 (14): 1-23.

---. “Spinoza on Physical Science,” *Philosophy Compass* 9 (3)(2014): 214-223.

---. “The “Physical” Interlude.” In Yitzhak Melamed (ed.), *Spinoza’s* Ethics: *A Critical Guide*. Cambridge: Cambridge University Press, 2017: 102-120.

Rice, L. C. “Spinoza's Infinite Extension,” *History of European Ideas*, 22 (1) (1996): 33–43.

Robinson, T., 2009. “Spinoza on the Vacuum and the Simplicity of Corporeal Substance,” *History of Philosophy Quarterly*, 26 (1): 63–81.

Sangiacomo, Andrea. “Fixing Descartes: Ethical Intellectualism in Spinoza's Early Writings.”*Southern Journal of Philosophy* 53 (3) (2015): 338-361.

Shein, Noa. “Causation and Determinate Existence of Finite Modes in Spinoza.” *Archiv für Geschichte der Philosophie* 97 (3 (2015): 334-357.

---. “Not Wholly Finite: The Dual Aspect of Finite Modes in Spinoza.” *Philosophia* 46 (2018): 433–51

Schliesser, Eric. “Newton and Spinoza: on Motion and Matter (and God, of course).” *The Southern Journal of Philosophy* 50 (2012): 436-458.

---. “Spinoza and the Philosophy of Science: Mathematics, Motion, and Being.” In Michael Della Rocca (ed.), *The Oxford Handbook of Spinoza*. Oxford: Oxford University Press, 2018. 155-189.

---. “Spinoza's Conatus as an essence preserving, attribute-neutral immanent cause: toward a new interpretation of attributes and modes.” In Keith Allen & Tom Stoneham (eds.), *Causation and Modern Philosophy*. London: Routledge, 2011. 3-65

Schmaltz, Tad. “Spinoza on the Vacuum.” *Archiv für Geschichte der Philosophie* 81 (1999): 174-205.

---. *Descartes on Causation*. New York: Oxford University Press, 2008.

---. “The Metaphysics of Rest in Descartes and Malebranche.” *Res Philosophica* 92 (1) (2015): 21-40.

Slowik, Edward. “Perfect Solidity: Natural Laws and the Problem of Matter in Descartes’ Universe.” *History of Philosophy Quarterly* 13 (2) (1996): 187-204

Spinoza. *The Collected Works of Spinoza*, volumes I and II. Translated by Edwin Curley. Princeton: Princeton University Press, 1985/2016.

Viljanen, Valtteri. “On the Derivation and Meaning of Spinoza's Conatus Doctrine.” *Oxford Studies in Early Modern Philosophy* 4: 89-112.

Viljanen, Valtteri. *Spinoza’s Geometry of Power*. New York: Cambridge University Press, 2011.

Waller, Jason. “Spinoza on the Incoherence of Self-Destruction.” British Journal for the History of Philosophy 17, no. 3 (2009): 487–503.

Winkler, Sean. “The Conatus of the Body in Spinoza’s Physics.” *Society and Politics* 10 (2) (2016): 95-114.

Woolhouse, Roger. *Descartes, Spinoza, Leibniz: The Concept of Substance in Seventeenth Century Metaphysics.* New York: Routledge, 1993.

1. Commentators who explicitly attribute resistance of some form to Spinozistic bodies, whether they think he is entitled to it or not, include Garber (1994), Garrett (1994), Viljanen (2008), Matson (1977), Alison (1987), Lachterman (1980), Manning (2013), Lecrivain (1986), Shein (2015; 2018), and Della Rocca (2008). [↑](#footnote-ref-1)
2. To cite only a few examples, Viljanen (2008) argues that bodies resist each other because that is part and parcel of their being *causes*, Manning (2013) and Shein (2018) argue that they resist each other because they are *active*, and Della Rocca (2008) argues that they resist each other because their existences are *conceptual truths*. [↑](#footnote-ref-2)
3. See Garber (2009: chs. 3-4) for a nice overview of Leibniz’s views on resistance. [↑](#footnote-ref-3)
4. Translations and references from the de Volder correspondence come from Lodge (2013). [↑](#footnote-ref-4)
5. This is especially true since the Cartesian, Leibniz’s opponent here, would reject as a category mistake any application of the concepts of *indifference* and *inclination* to body. [↑](#footnote-ref-5)
6. While dynamics requires at least enough metaphysics to state the dynamical laws, the fact that philosophers of the period sometimes agree on physical laws and disagree on their explanation is strong evidence that dynamics and metaphysics can be distinguished to an extent. [↑](#footnote-ref-6)
7. Leibniz has in mind his early *Theoria motus abstracti* (1671). [↑](#footnote-ref-7)
8. Garber (1992) and Hatfield (1979) both agree with Leibniz’s characterization of Cartesian physics as resistanceless. For the sake of this paper, I will assume that Cartesian physics lacks the kind of resistance that Leibniz is pointing to. But this is controversial. Two influential accounts of force, including force of resistance, in Cartesian bodies include Gueroult (1980) and Gabbey (1980). Schmaltz (2008) argues that *laws* concerning force act as secondary causes. See also Schmaltz (2015) for a discussion of the “force of rest” in Descartes. [↑](#footnote-ref-8)
9. This is the ‘impact contest’ model of collision: the outcome of collisions is a function of the powers of continuing and resistance of the colliding bodies. See Clarke (1977), Gabbey (1980), Garber (1992), and Slowik (1996). In a letter to Clerselier, Descartes claims, rather oddly, that all collisions are governed by a law of least change. Garber (ibid: 246) argues that impact model and the law of least change are incompatible. [↑](#footnote-ref-9)
10. See also his letter to Mersenne (AT II 543). [↑](#footnote-ref-10)
11. So, Cartesian physics contains Leibnizian resistance on some interpretations. See footnote 8 above. Even Leibniz changes his mind about what feature of body grounds resistance. In his earlier work he attributes it to the active nature of body:: “a resisting thing is that which acts on that by which it is acted upon” (A6.4.1394/RA 237). In his letters to de Volder, he claims that primitive resistance forces arise from the passive powers associated with the prime matter of a body. [↑](#footnote-ref-11)
12. See section IV for a discussion of views of resistance which reject the intrinsic-extrinsic distinction. [↑](#footnote-ref-12)
13. See, for instance, Garber (1994) and Della Rocca (2008), among others. [↑](#footnote-ref-13)
14. See Peterman (2015) for an in-depth discussion of Spinoza’s rejection of the Cartesian conception of body. On the same point, see Schmaltz (1999), Woolhouse (1993), Rice (1996), Robinson (2009), and Cover (1993). [↑](#footnote-ref-14)
15. For detailed discussions of Spinoza’s physics, see Adler (1996), Hassing (1980), Gabbey (1996), Klever (1988), Manning (2012), Peterman (2014, 2017), Lachterman (1977), Lecrivain (1986), and Schliesser (2018). [↑](#footnote-ref-15)
16. See, for instance, Letter 12 (esp. G IV 57/C I 203). See Melamed (2000), Schliesser (2018), Lecrivain (1986: 20), and Peterman (2014; 2015) for recent discussion of this theme. [↑](#footnote-ref-16)
17. See Gabbey (1971; 1980) and Garber (1992) for detailed discussions of Cartesian inertia. [↑](#footnote-ref-17)
18. In addition, many of the new proofs rely on the ‘Principle of Least Mutation,’ a principle which appears in Descartes but is also similar to a principle that Spinoza loves, viz. the Principle of Sufficient Reason. [↑](#footnote-ref-18)
19. He doesn’t say which he doesn’t deny. [↑](#footnote-ref-19)
20. Spinoza endorses *a* law of conservation, namely the conservation of ratio of motion to rest. See, for example, Letter 32 amd Lemma 7 of the Physical Digression. But that this ratio remains constant is consistent both with constant quantity of motion and with fluctuating quantity of motion. See Schliesser (2018) for discussion on this point. Leibniz reports that when he and Spinoza met, Spinoza was surprised to learn that quantity of motion is not conserved. The report comes from the *Nouvelles Lettres et Opuscules de Leibniz* (64). Garber (1995: 339) expresses some doubts about its reliability. See Schliesser (2012) for a general discussion of Spinoza and the cause of motion. [↑](#footnote-ref-20)
21. It is unclear whether simple bodies are real minima—literally indivisible bodies—or theoretical constructs, i.e., bodies that are only indivisible relative to other bodies. For instance, a Lego piece is a simple body relative to Lego construction since it is not composed of other Lego pieces. But relative to molecules, Lego pieces are not simple. But nothing in this section turns on an interpretation of simple bodies, since regardless of their metaphysical interpretation, simple bodies in a given dynamical context will not differ in size and so will be provide a test case for resistanceD. See Winkler (2016: 97-8) for a review of the various interpretive options with regards to simple bodies. [↑](#footnote-ref-21)
22. In section IV, I will consider a view of resistance which denies the distinction between what is true of a body itself and what it is caused by something external to it. [↑](#footnote-ref-22)
23. Klever (2010) considers Spinoza’s view on inertia to be similar to Kepler’s, according to which continued motion requires an outside cause. He cites a number of contemporaries of Spinoza who plausibly read him this way, including Volder. But the fact that Spinoza’s proofs are virtual copies of Hobbes’ proofs in *De Corpore* (*EW i.* 115), whose bodies stay in motion without an outside cause, suggests that his view of inertia is non-Keplerian. [↑](#footnote-ref-23)
24. Hassing (1980) raises the problem of the self-motion of animals. [↑](#footnote-ref-24)
25. Schliesser (2018: 183-4) argues that Spinozistic inertia does not involve directionality. [↑](#footnote-ref-25)
26. Consider also the fact that Spinoza claims that a thing, insofar as it is an expression of God’s nature, cannot have determinate duration (E1p21d). Insofar as zigzagging motion involves determination duration, Spinoza can rule it out. [↑](#footnote-ref-26)
27. Schliesser (2018: fn. 99) suggests that directionality may be derived from a least action principle, which would be in line with what I suggest here. [↑](#footnote-ref-27)
28. Spinoza doesn’t say *why* this is. One potential gloss on this is as follows. Two lines can be curved without being superimposable onto one another through rotation in two-dimensional space. For example, one curves north and the other south. In order to superimpose them, they must be rotated through a third dimension of space. But any two straight lines can be superimposed only by rotating them within two-dimensional space. So, if inertial motion were curved rather than rectilinear, more would be required to specify *how* it is curved than would be required if inertial motion is rectilinear. [↑](#footnote-ref-28)
29. Manning (2008: 3.3) argues that the language of Spinoza’s inertia law constitutes evidence of something more than a conditional tendency: “If Spinoza's principle of inertia is …taken as involving “conari” in an active sense, then it must be taken to amount to the claim not just that bodies will not in fact change their state unless externally determined to do so, but also that …the body's own impulse is at work actively endeavoring to determine it to move as it would in the absence of that external cause”. By Manning’s own admission, however, the linguistic evidence is only so compelling. After all, Descartes uses “conari” to express a mere conditional tendency of bodies (*Principles* 3.56). Furthermore, if inertia were the result of active striving, then we should expect Spinoza’s proofs to reflect that. [↑](#footnote-ref-29)
30. It is not until his *Hypothesis physica nova* that Leibniz gives God a role to play in the laws of motion. See Garber (1995: 273-81) for discussion. [↑](#footnote-ref-30)
31. Matson (1977) and Lecrivain (1986) agree with this characterization. Manning (2013) agrees that the proof is *a priori* in nature, but he takes this to be a flaw because it makes metaphysically foundational a principle that Descartes thinks requires God’s nature to prove. [↑](#footnote-ref-31)
32. Matson (1977) and Buyse (2016), for example, argue that E3p4 is a direct application of the law of inertia. For more general discussions of the argument for the impossibility of self-destruction, see Waller (2009), Bennett (1984), Garrett (2002), and Della Rocca (1996). [↑](#footnote-ref-32)
33. Those who deny the equivalence of inertia and conatus include Schliesser (2011), Hassing (1980), Lecrivain (1986), Viljanen (2008), and Lachterman (1980), and Winkler (2016). Matson (1977) accuses Spinoza of overextending the concept of inertia.. [↑](#footnote-ref-33)
34. See also Lemma 7 of the Physical Digression. [↑](#footnote-ref-34)
35. This inference assumes that the only closed system of bodies is that of the entire universe. If the universe as a totality is the only closed system, then ratio of motion to rest must be conserved in each collision, otherwise the conservation law would be violated. But if the universe contains several closed subsystems—e.g., relatively autonomous systems existing in different levels of description or isolated systems at the same level of description—then the fact that the ratio of motion to rest is not conserved in a single collision need not violate the conservation law for the entire universe. After all, a decrease in ratio of motion to rest in one subsystem might be off-set by an increase in another subsystem. [↑](#footnote-ref-35)
36. See Guigon (2012), Grey (2014), and Mátyási (2020) for recent discussions of part-whole priority in Spinoza. [↑](#footnote-ref-36)
37. Thanks to John Grey for this suggestion. [↑](#footnote-ref-37)
38. This doesn’t mean that those composite bodies don’t *have* ratios of motion to rest or that their identity isn’t based in those ratios. [↑](#footnote-ref-38)
39. Interpretations of the E3p6 proof generally fall into two camps: those that lean on E3p4 and E3p5 and those that lean on E1p25c and E1p34. The first camp includes Bennett (1984) and Curley (1988). The second camp includes Lin (2004) and Allison (1988). Viljanen (2008), who surveys these camps helpfully, attempts to show that they are compatible. [↑](#footnote-ref-39)
40. This doesn’t mean that absolute activity is required for resistance rather than partial activity, but that attempts to capture resistance solely in terms of partial activity, absent any dynamical effects, seem misguided. [↑](#footnote-ref-40)
41. See Shein (2015) for a similar argument. [↑](#footnote-ref-41)
42. See Garrett (1994) for a similar view. [↑](#footnote-ref-42)
43. She does argue, on the basis of the fifth postulate in the Physical Digression, that different bodies resist to different degrees, because some bodies, but not all, leave impressions on other bodies (443-4). But this is not yet to highlight a concept of resistance, but only the existence of impact laws. After all, it may be that the bodies that leave an impression are moving more quickly. [↑](#footnote-ref-43)
44. There might be the worry that I am begging the question by requiring independent characterizations of bodies. I think that misses the point slightly. I am asking instead how a network of bodies can have bodies that resist to different degrees if each of those bodies is infinite and their resistance is a function of their infinity. So, we can grant a network-based account of individuation and still ask why the individuals are different, rather than merely all the same. [↑](#footnote-ref-44)
45. Peterman (2014: 220) suggests a related but slightly different strategy for interpreting Spinoza’s physics, namely that of examining his general metaphysics and inferring back to his physics. [↑](#footnote-ref-45)
46. For example, representation seems to be uniquely mental (E2d3) and motion seems to be uniquely physical (Eps. 81-83). See Lin (2017) for a discussion of the ‘mark of the mental’ in Spinoza. [↑](#footnote-ref-46)
47. Spinoza says in the CM that “it does not seem that [the conservation of motion] applies to spiritual things, for it is not evident that they depend on one another in this way” (G I 274/C I 339). But this passage occurs in a discussion of how God conserves quantity of motion and Spinoza seems to be echoing the Cartesian point that the mental is not deterministic in the way physics is. In any event, by the time of the *Ethics* Spinoza is happy to make cross-attribute inferences on the basis of structural similarities. See Schliesser (2011: 71-2) for a discussion of this passage. [↑](#footnote-ref-47)
48. Sangiacomo (2015) argues that Spinoza became attracted to mental resistance because of the failure of the intellectualism of the TdIE, though he does not make the analogy to physical resistance and he does not distinguish between real resistance and merely metaphorical resistance. [↑](#footnote-ref-48)
49. Though the Principle appears most explicitly in PCP, and Descartes cites it in a letter to Mersenne, there is strong reason to think that Spinoza himself endorses it. Specifically, it follows from the PSR, which Spinoza clearly accepts. If a change occurred that wasn’t necessary to resolve a contrariety, then there would be no reason for that change. [↑](#footnote-ref-49)
50. This formulation mirrors the more general formulation of determinism (E1p28) and the physical formulation of determinism that appears in the Physical Digression. [↑](#footnote-ref-50)
51. There remains the question of directionality. After all, if we can talk about mental collisions and their resolution, we need a notion of directionality, since directionality is a key component of physical contrariety. Given what I argued above in defense of rectilinear motion—that is follows from the simplicity of motion—the “direction”of ideas would seem to be the simplest of the possible directions. But what is a mental direction? From every thing some effects follow (E1p34), so the direction of ideas are plausibly the effects of an idea. So, ideas, at least insofar as they are in themselves, have the simplest effects. It is not exactly clear what this would mean, but one potential interpretation would be that ideas, insofar as they are in themselves and expressions of God’s nature, are conducive to means-ends rationality. For example, adequate ideas never by themselves lead to seeking short-term goods at the expense of long-term ones (E4p62s). [↑](#footnote-ref-51)
52. This requirement is analogous to the requirement in Cartesian physics that a body of size *n* can be moved, other things being equal, only by a body great than *n* in size. [↑](#footnote-ref-52)
53. See Della Rocca (1996: ch. 3) for a detailed discussion of this doctrine. [↑](#footnote-ref-53)
54. Tschirnhaus raises precisely this worry in his late letters to Spinoza. [↑](#footnote-ref-54)