

Move Your Body! Margaret Cavendish on Self-Motion

Abstract: Margaret Cavendish (1623-1673) argues that when someone throws a ball, their hand does *not* cause the ball to move. Instead, the ball moves itself. In this chapter, I reconstruct Cavendish's argument that material things—like the ball—are self-moving. Cavendish argues that body-body interaction is unintelligible. We cannot make sense of interaction in terms of the transfer of motion nor the more basic idea that one body acts *in* another body. Assuming *something* moves bodies around, Cavendish concludes that bodies move themselves. Still, Cavendish needs to explain why bodies *appear* to causally interact even if they do not really. Balls do not usually throw themselves without a helping hand. I offer a new reading of the way bodies respond to their external circumstances in terms of prerequisites or enabling conditions.

Key Words: Margaret Cavendish, self-motion, power, causation, occasional causation

Word Count: ***

Introduction

When someone throws a ball, their hand might seem to cause the ball's motion. Margaret Cavendish (1623-1673) disagrees:

It seems, my former Letter concerning Motion, has given you occasion to propound this following question to me, to wit: *When I throw a bowl* [i.e., a bowling ball], *or strike a ball with my hand, whether the motion, by which the bowl or ball is moved, be the hands, or the balls own motion?* . . . To which, I return this short answer: That the motion by which (for example)

the bowl is moved, is the bowls own motion, and not the hands that threw it . . . (PL 444-5)

According to Cavendish, the motion by which the ball is moved—the driving force, the causal engine—is not the hand’s, but the ball’s own. The ball causes itself to move.

In Cavendish’s system, all bodies are self-moving: minerals, mountains, plants, animals, men, and stars included. Each material things moves itself; material things do not move other things. As Cavendish writes, “Nature’s Parts move themselves, and are not moved by any Agent” (GNP 105). When someone walks across a field of snow, their footsteps do not produce the prints in the snow. The snow organizes itself into the shape of footprints (PL 104-5). The appearance of causal interaction is just an appearance. Still, Cavendish needs to explain why bowling balls typically only roll when they are thrown, and why prints appear in a field of fresh snow only when someone tracks across it. Cavendish appeals to the idea that one body can *occasion* another’s movements to account for these familiar types of regularities:

Wherefore one body may occasion another body to move so or so, but not give it any motion, but **every body (though occasioned by another, to move in such a way) moves by its own natural motion**; for self-motion is the very nature of animate matter... (PL 100, emphasis added)

The hand triggers the ball's self-motion without genuinely causing it. A person's footsteps occasion prints in the snow without producing them. An occasion, on this view, is a non-causal explanatory factor (*GNP* 56).¹ It is a quasi-cause or cause-lite, *not* a true cause.²

Cavendish's view, then, has three main planks:

1. *No Causal Interaction*: If bodies *a* and *b* are distinct things, then *a* is not the true cause of *b*'s motion.³

¹ *Pace* O'Neill (2001: xxxiv; 2013: 323-4).

² By a true cause, I mean an efficient or productive cause—what Cavendish refers to as a prime or principal cause (*PL* 79). Malebranche, by comparison, denies true causality of creatures and reserves it for God. Unless otherwise indicated, I use causal language to refer to true causation.

³ Strictly speaking, Cavendish restricts her denial of transeunt causation to cases where matter is not transferred. See James (1999: 239-242), O'Neill (2001: xxxv; 2013: 323-4), and Lascano (2023: 104). I will omit this qualification as I focus on cases where the transfer of matter is not doing the explanatory work. Even if a few particles of matter transfer when billiard balls collide, this presumably does not explain their subsequent trajectories. Admittedly, commentators disagree about whether Cavendish accepts even the qualified version of this principle: if *a* and *b* are distinct, and if *a* does not transfer any of its matter to *b*, then *a* does not truly cause *b*'s motion. Detlefsen (2006: 234; 2007: 167-8 & 186) and Boyle (2018: 74-6 & 98-104) rightly interpret Cavendish as endorsing it. In contrast, O'Neill (2001: xxxiv; 2013: 323-4) holds that a body can cause a *superficial* change in another body, even without the transfer of matter. Similarly, Cunning (2016: 153-7) takes bodies in the plenum to necessitate and, hence, cause the states of other bodies. Lascano (2023: 107-108; see also 115-6) argues that a body can partially cause another's body's motion, as when an external object helps determine the nature and content of

2. *Self-Motion*: Each body is the true cause of its own motion.
3. *Occasional Influence*: A body *a* can occasion or non-causally determine the way a body *b* moves itself.⁴

Admittedly, the idea that bowling balls throw themselves is unusual, while the distinction between occasions and true causes may seem problematic. If a hand can influence a ball's motion, why is that not true causation? I defend Cavendish on these fronts. First, I show that she has compelling arguments against body-body interaction. Second, I sketch her reasons for holding that bodies move themselves. Third, I offer a new reading of the way bodies respond to their external circumstances despite being causally insulated from them.

1. No Causal Interaction

(a) *No Transfer*

When someone throws a ball, motion seems to flow from their hand into the ball. When billiard balls collide, one slows down while the other takes off. The correlation between motion lost and motion gained might suggest that a body causes another to move by *imparting* some of its motion. Cavendish criticizes this approach to body-body interaction.

someone's perception. In conversation, however, Lascano has clarified that she does *not* hold that the external object is a true cause. Her point is that the external object is a difference-maker, which need not imply true causality. Below, I explain the kind of difference-maker an occasion is.

⁴ Sometimes Cavendish refers to occasions as occasional *causes*, but she distinguishes these from prime or principal causes, i.e., true causes (*PL* 79).

To clarify the target of Cavendish's critique, we should distinguish local motion from motive force.⁵ *Local motion* is the familiar type of change that occurs when someone moves from point *a* to point *b*, as when they walk across a room.⁶ *Motive force* is the engine or power that carries them across the room, the cause or driving force behind the local motions we observe. Local motion cannot transfer. The change that occurs when someone walks across a room cannot pass to another body, any more than a body's history can transfer to something else. Instead, the transfer model more plausibly suggests that bodies impart motive force.

In *Philosophical Letters* I.30, Cavendish frames her critique of this model as an objection to Descartes. Though scholars disagree about whether Descartes *really* accepts the transfer model, he often describes motion or motive force as passing between bodies. In *The World*, he writes: "the virtue or power in a body to move itself can well pass wholly or partially to another body and thus no longer be in the first" (AT XI 15). Similarly, in *Principles* II.40, Descartes's third law of motion describes motion as passing from one body to the next: "if a body collides with a weaker body, it loses a quantity of motion [i.e., its motive force] equal to that which it *imparts* to the other body" (AT VIIIA 65/CSM I 242, emphasis added).

Cavendish objects that Descartes's understanding of motion as a mode of bodies makes the transfer model incoherent:

⁵ See Peterman (2019: 487-8).

⁶ As Peterman (2019: 478) notes, the standard gloss of local motion as change of place does not work for Cavendish, since Cavendish holds that bodies take their places with them (*PL* 67). Instead, Peterman (2019) argues that Cavendish reinterprets this type of change in terms of changing part-whole relations.

For how can motion, being no substance, but only a mode, quit one body and pass into another? One body may either occasion or imitate another's motion, but it cannot give nor take away what belongs to its own or another's body substance, no more than matter can quit its nature from being matter. (*PL* 97-8; see also 308)

In Descartes's system, a mode is a way in which a substance exists. Hence, a mode cannot exist apart from the substance to which it belongs. Consider the shape of a ball of wax. This shape just is a determinate way in which the wax exists, viz., spherically. The shape of *this* piece of wax—its spherical configuration—cannot float away and join another substance. Similarly, if motion is a mode of body, then it is not something above and beyond the body to which it belongs. The motion of *this* body cannot be detached to join another.⁷ Hence, if motion is a mode of body, it cannot pass between bodies.

How far does this argument take Cavendish? Even if she has shown that motion *qua* mode cannot transfer, maybe an alternative understanding of motion—as a real accident, for example—would allow for transfer. Cavendish, however, has reasons for rejecting *any* version of the transfer model on which motion migrates without a corresponding transfer of matter, regardless of whether motion is a mode, a real accident, or whatever.

The transfer model holds that motion can pass from one body to another without any matter being transferred. Even this schematic statement of the model, stripped of any commitment to substance-mode metaphysics, conflicts with Cavendish's materialism. If motion is transferred in

⁷ This argument works best if finite bodies are discrete substances—an assumption that neither Descartes nor Cavendish clearly accept.

ordinary transactions between bodies, then motion is something natural. But everything in nature, according to Cavendish, is material (*OEP* 177, 231). Hence, motion is material. If motion can be transferred without matter, however, then motion must be distinct and independent from matter. As Cavendish puts it, the transferred motion must be “incorporeal,” “bodiless,” or “immaterial” (*PL* 77). Thus, the transfer model absurdly implies that motion is both material and immaterial, a natural something and a “natural no-Thing” (*PL* 78). It is “an impossible proposition,” Cavendish concludes, “that there is an immaterial motion,” i.e., motion imparted without matter (*PL* 77).

Cavendish’s critique is powerful but for a fatal flaw. Neither Descartes nor any of her other targets such as Hobbes and More ultimately endorse the transfer model.⁸ When pressed by More about whether motion can transfer, Descartes backs off:

you [More] observe correctly that ‘motion, being a mode of body, cannot pass from one body to another’. But that is not what I wrote; indeed I think that motion, considered as such a mode, continually changes . . . So there is no need for you to worry about the transmigration of rest from one object to another, since not even motion, considered as a mode which is the contrary to rest, transmigrates in that fashion. (*Letter to More, August 1649, AT V 404-5/CSMK III 382*)

In a spectacular instance of philosophical gaslighting, Descartes denies that he ever said that motion could be transferred. Or, at least, he never meant it.

⁸ See Adams (2021: 501-2) for Hobbes’s critique of the transfer model. Regius seems to be one of the few philosophers to endorse this model in the early modern period. See Sangiacomo (2014: 69n.14). For discussion of the philosophical issues at stake, Heil (2018) is illuminating.

Perhaps the transfer model is an account of body-body interaction more often criticized than endorsed.⁹ A few centuries earlier, Aquinas complained that reports of transfer had been exaggerated. He criticizes occasionalists for assuming the impossibility of transferring accidents refutes the Aristotelian model of causal interaction:

it is laughable to say that a body does not act because an accident does not pass from subject to subject. For a hot body is not said to give off heat in this sense, that numerically the same heat which is in the heating body passes over into the heated body. Rather, by the power of the heat which is in the heating body, a numerically different heat is made actual in the heated body, a heat which was previously in it in potency. For a natural agent does not hand over its own form to another subject, but it reduces the passive subject from potency to act. (*Summa Contra Gentiles* III.69.28)

On Aquinas's model, when someone puts a kettle on the stove, the stove's power *to heat* activates the kettle's power *to be heated*, without any literal transfer of forms or accidents from the stove to the kettle.

Still, Cavendish might ask her opponents to provide an alternative account of how one body acts on another if nothing passes between them. How does the stove's power to heat activate the kettle's power to be heated if not via transfer? How does the hand's motive force produce the bowling ball's subsequent motion? One possibility is that the stove's power to heat somehow *reaches into* the kettle, and the hand's motive force *acts in and on* the ball, without being transferred. Cavendish objects to this model as well.

⁹ Early modern critics include Hobbes, More, Cavendish, La Forge and Leibniz.

(b) *No Reaching into Other Bodies*

According to an Aristotelian account of causation, one body (the agent) reaches into another body (the patient) in the sense that the agent's *activity* is one and the same as the *passion* the patient suffers.¹⁰ When the hot stove heats the kettle, the stove's activity of *heating* is the very same event as the kettle's *being heated up*. The heating and the being heated are two sides of the same metaphysical coin, which is cashed in the kettle. Applied to the hand and the bowling ball, the hand's manifestation of its motive force is the very same event as the bowling ball's subsequent motion. The hand actualizes its power *in the bowling ball*. This account further specifies the idea that one body (the agent) reaches into another body (the patient) in cases of body-body interaction. Call this the *reaching model*.

Cavendish would have encountered the Aristotelian account in the opening section of Descartes's *Passions of the Soul*:

I note that whatever takes place or occurs is generally called by philosophers a 'passion' with regard to the subject to which it happens and an 'action' with regard to that which makes it happen. Thus, although an agent and patient are often quite different, an action

¹⁰ As Aristotle writes, "[w]here, then, the result is something apart from the exercise, the actuality is in the thing that is being made, e.g. the act of building is in the thing that is being built and that of weaving in the thing that is being woven, and similarly in all other cases, and in general the movement is in the thing that is being moved" (*Metaphysics* 1050a30-4; see also *Physics* 202a12-202b28). Freddoso (2002: xix-xx & xxxvi-vii) sympathetically reconstructs this approach.

and passion must always be a single thing which has these two names on account of the two different subjects to which it may be related. (AT XI 328/CSM I 327)¹¹

Again, Descartes scholars disagree about how literally to take this passage.¹² Regardless, this passage establishes that Cavendish would have known about the Aristotelian approach, especially since it appears in the first section of the *Passions*!

Cavendish objects that one and the same motion cannot belong to two things at once. According to the reaching model, when a hand throws a bowling ball, the hand's action just is the bowling ball's subsequent motion. This process—this motion—occurs *in* the bowling ball, but it belongs to both the ball and the hand. It is simultaneously the activity of the hand *and* the passion of the ball. But this, Cavendish suggests, is absurd. One and the same motion cannot belong to two things at once.

Cavendish formulates this objection by considering someone using an instrument, such as a penknife, to carve a pattern into a piece of wood:

I Perceive by your last, that you cannot well apprehend my meaning, when I say that the print or figure of a Body Printed or Carved, is not made by the motions of the body Printing or Carving it, but by the motions of the body or substance Printed or Carved; for say you, Doth a piece of Wood carve it self, or a black Patch of a Lady cut its own

¹¹ In the 1655 edition of the *Philosophical and Physical Opinions*, Cavendish reports having read Descartes's little book on the passions. When she writes *Philosophical Letters* 1664, Cavendish was even more familiar with his philosophy.

¹² See Hoffman (1990) and Brown (2006: 117-27).

figure by its own motions? Before I answer you, Madam, give me leave to ask you this question, whether it be the motion of the hand, or the Instrument, or both, that print or carve such or such a body? Perchance you will say, that the motion of the hand moves the Instrument, and the Instrument moves the Wood which is to be carved: *Then I ask, whether the motion that moves the Instrument, be the Instruments, or the Hands? Perchance you will say the Hands; but I answer, how can it be the Hands motion, if it be in the Instrument?* (PL 77, emphasis added)

The defender of body-body interaction holds that the hand produces the instrument's motion, which in turn produces the carving in the piece of wood. Cavendish zeroes in on the interaction of hand and instrument. How does this work? She asks: "whether the motion that moves the Instrument, be the Instruments, or the Hands? Perchance you will say the Hands" (*ibid.*). According to the reaching model, the hand's motive force moves the instrument. But this motion—the actualization of the hand's motive force—occurs *in* the instrument. Cavendish finds this incoherent: "how can it be the Hands motion, if it be in the Instrument?" (*ibid.*). The hand's motive force cannot also belong to the instrument. One motion cannot belong to two things at once.

The reaching model requires something like a straddling mode or accident with one foot in each body. If the agent's action is one and the same as the passion the patient suffers, then this event—the action/passion—straddles the gap between agent and patient. The objection, then, is that straddlers are impossible. Action and passion cannot be identical and yet belong to distinct things.

Cavendish also objects to the reaching model by considering a watchmaker. If a watchmaker truly causes a watch's motion, then, on the reaching model, the watchmaker's activity would be

identical to and, hence, inseparable from the watch's motion. But a watch continues operating after a watchmaker finishes his task. The watchmaker's activity is separable from its effects in the watch. As Cavendish writes:

for a Watch, although the Artist or Watch-maker be the occasional cause that the Watch moves in such or such an artificial figure, as the figure of a Watch, yet it is the Watches own motion by which it moves; *for when you carry the Watch about you, certainly the Watch-makers hand is not then with it as to move it.* (PL 79, emphasis added; see also GNP 56)

The watch's motion cannot be identical to the watchmaker's work because "when you carry the Watch about you, certainly the Watchmakers hand is not then with it as to move it." (*ibid.*).

Instead, we should locate the cause of the watch's motion within the watch itself.

(c) *No Necessary Connection?*

In response to Cavendish's objections, the defender of body-body interaction might replace the identity of action and passion with their inseparability or necessary connection, thereby eliminating any metaphysically suspect straddlers.¹³ On this model, which we might call the *necessary connection model*, action and passion are distinct states of the agent and patient that form a package. The hand's exercise of its motive force is distinct from—i.e., not identical to—the ball's motion, but these states are so intimately joined that one cannot occur without the other. If the hand acts, the ball moves. If the ball moves, the hand must have acted.

¹³ Brown (2006: 127-134) attributes a view along these lines to Descartes.

O'Neill (2001: xxxiii) and Detlefsen (2006: 233-4; 2007: 167) interpret Cavendish as criticizing this model, focusing specifically on perception.¹⁴ On their reading, an external object cannot be the true cause of perception because the object is neither *necessary* nor *sufficient* for this effect. Cavendish explicitly argues that an object cannot be the true cause of perception because it is unnecessary: “the Object is not the cause of Perception, but is only the occasion: for, the Sensitive Organs can make such like figurative actions, were there no Object present; which proves, that the Object is not the Cause of the Perception” (GNP 56).¹⁵ So far as I can tell, however, Cavendish does *not* appeal to the insufficiency of the external object to argue that it cannot be the cause of perception. O'Neill gestures at cases “where we are mentally distracted such that, even though the object is present to our senses, we do not see it,” though without specifying any passages (2001: xxxiii). In this vein, Detlefsen (2006: 233) mentions Cavendish's example in the *Observations* of someone who does not notice a pinch (OEP 150). But, as Lascano (2023: 114) notes, this passage does not describe an object failing to produce a perception. Cavendish's point is that a person's rational matter may fail to register their sensitive perceptions.

Even if an external object is neither necessary nor sufficient for *perception*, we should not conclude that nature entirely lacks necessary connections: that there are *never* cases where one body *necessitates* another. Cavendish denies that nature generally is “loose and separate.”¹⁶ She writes:

¹⁴ See also Michaelian (2009: 40) and Adams (2016: 196).

¹⁵ The watchmaker example discussed above arguably has a similar structure.

¹⁶In support of the general conclusion, Detlefsen argues that the matter's freedom builds looseness into nature (2006: 234). If every part of nature has libertarian freedom, then no part can necessitate the state of any other. This argument presupposes Detlefsen's controversial libertarian reading of Cavendish, however. See also Boyle (2018: 30-9).

that exterior body is the occasion that it moves after such a manner, and therefore this motion of the line [i.e. a string or rope], although it is the lines own motion, yet in respect of the exterior body that causes it to move that way, it may be called a forced, or rather an occasioned motion . . . (*PL* 443; see also 155 & 356-7; PPO-1663 193-194; *GNP* 6)

The exterior body forces or necessitates another body to move in a certain way. Hence, Cavendish presumably does not appeal to the absence of necessary connections to argue that bodies are causally insulated across the board. Sometimes the necessary connections obtain.

I am not suggesting that Cavendish endorses the necessary connection model as a viable account of body-body interaction.¹⁷ On the contrary, I think Cavendish rejects *all* models of body-body interaction when there is no transfer of matter. My contention, rather, is that her negative campaign against body-body interaction lacks—for better or worse—the sweeping attack on necessary connections we find in Al-Ghazali, Malebranche, and Hume.

(d) Taking Stock

We cannot make sense of body-body interaction in terms of (a) the transfer of motion nor (b) the identity of action of passion. Both models try to explain the causal relation that bridges the gap between distinct bodies. Neither succeeds. In the absence of a viable model, Cavendish concludes that distinct bodies are causally insulated.

¹⁷ Pace Cunning (2016).

O'Neill (2001, 2013) understands the upshot of these arguments differently. On her reading, bodies can produce superficial changes in other bodies, but not profound ones (O'Neill 2013: 45-6). When someone throws a bowling ball, their hand produces a change on the surface of the ball, which then provides the occasion for the ball to roll itself.¹⁸ At stake here is whether genuine transeunt causation occurs in Cavendish's system when no matter is transferred. I say: no. O'Neill says: a little, on the surfaces of things.

O'Neill's reading conflicts with the arguments reconstructed above. These arguments dismantle the idea that bodies can produce changes in other bodies. If these arguments work, they apply equally to superficial and more profound changes. They do not leave space for O'Neill's reading on which Cavendish rules out the latter type of effect but not the former; they do not respect the distinction between superficial and deeper effects on which her reading relies. Thus, I conclude, *pave* O'Neill, that distinct parts of nature are in fact "causally inefficacious with respect to each other" (2013: 323). That is where Cavendish's arguments lead.

Malebranche and Hume would likely be sympathetic to Cavendish's arguments *against* body-body interaction. But then the three philosophers diverge. Malebranche opts for full-blown occasionalism, according to which God causes everything. Hume replaces true causes with constant conjunction and human expectation. Cavendish argues that bodies cause themselves to

¹⁸ As O'Neill writes: "Cavendish's account of natural change in terms of occasional causes does *not* imply that the parts of nature are causally inefficacious with respect to each other. She does not deny that individual bodies have causal powers with respect to other individual bodies; she does not deny transeunt efficient causation. For recall that the hand's perfect causation extends to the surface of the ball, where it can effect change in local motion" (2013: 45-6).

move. As Cavendish writes, “every body (though occasioned by another, to move in such a way) moves by its own natural motion; for self-motion is the very nature of animate matter” (*PL* 100).

Why does Cavendish go for self-moving matter?

2. Self-Motion

Although Cavendish often moves directly from difficulties with body-body interaction to the conclusion that bodies move themselves, the comparison with Malebranche and Hume suggests that Cavendish needs to consider at least four options to complete her argument:

1. ~~Bodies cause changes in other bodies. (Common sense?)~~
2. Nothing causes the changes that occur in bodies. (Hume)
3. God—or some other spirit—causes changes in bodies. (Malebranche, More)
4. Each body causes the changes it undergoes. (Cavendish)

Cavendish wrote before either Malebranche or Hume and so she does not engage with their views as such. But we can gain insight into her system by considering how she might respond to their positions.

The Humean view is a non-starter for Cavendish. She does not take seriously the possibility *that things just happen*, i.e., that things happen without being caused to happen. Instead, she assumes that the natural philosopher should endeavor to identify and study the causes of things.

Cavendish, for example, argues that motion and order in the natural world testify to the existence of sensitive and rational matter as causes (*OEP* 207). She does not consider that motion and order might just be brute—i.e., uncaused—features of nature.

Although Cavendish does not confront Malebranche's full-blown occasionalism, she criticizes More's related view that the spirit of nature meddles in the operations of bodies.¹⁹ "I cannot conceive, how a spirit," Cavendish writes, "can have the effects of body, being none it self; for the effects flow from the cause; and as the cause is, so are its effects" (*PL* 197). If causes must resemble their effects, and if immaterial and material things are heterogenous, then immaterial things like the spirit of nature cannot produce material effects. Cavendish extends this conclusion to God: "As for God, he being immovable, and beyond all natural motion, cannot actually move matter" (*OEP* 230). Sorry, Malebranche. Indeed, Cavendish assigns a lower probability to material-immaterial interaction than body-body interaction, which she has already ruled out:

It is, in my opinion more probable, that one material should act upon another material, or one immaterial upon another immaterial, then that an immaterial should act upon a material. Thus the consideration or contemplation of immaterial natural Spirits puts me always into doubts, and raises so many contradictions in my sense and reason, as I know not, nor am not able to reconcile them. (*PL* 207)

Natural events, for Cavendish, require natural causes, and natural causes are material causes.

Full-blown occasionalism and its Morean cousin are off the table. The only option remaining is that bodies move themselves.

In addition to the argument from elimination, Cavendish hints at another argument that appeals to the identity of action and passion. If action and passion are one state or process, and if one state or process necessarily belongs to one thing, then action and passion must co-occur in the

¹⁹ O'Neill (2013: 314) is helpful on this point.

same thing. The identity of action and passion implies the identity of agent and patient. In other words, if motive force and the resulting local motion are two sides of the same metaphysical coin, and if a single metaphysical coin can belong to only a single body, then the moving body must be identical to the body moved. Hence, bodies move themselves.

Cavendish gestures at this argument when she asks: “whether the motion that moves the Instrument, be the Instruments, or the Hands? ... how can it be the Hands motion, if it be in the Instrument?” (PL 77). Cavendish’s answer is clear: the motion that moves the instrument (the motive force) must be in the instrument. Why? Because the motion that moves the instrument (the motive force) is one with the motion that manifestly plays out in the instrument (the resulting local motion). A similar thought animates Cavendish’s discussion of the watch: “yet it is the Watches own motion by which it moves; for when you carry the Watch about you, certainly the Watch-makers hand is not then with it as to move it” (PL 79). The motion that moves the watch—i.e., the motive force—must be found in the watch because this motive force cannot be separated from the watch’s operation, i.e., the motion of the hand around the dial.

A body’s exercise of its causal power—its activity—*just is* the effect or change it produces. The moving is the being moved, the heating is the being heated, the affecting is the being affected. But if a body’s activity *just is* the effect or change it produces, then a cause cannot be divided from the effect. Both must occur within a single thing. Bodies move themselves.

3. Occasional Influence

Why do bowling balls only roll when they are thrown? Why do prints appear in the snow only when someone tracks across it? Cavendish responds that the hand *occasions* the ball to roll

without strictly speaking causing this motion, while footsteps *occasion* the snow to organize itself into the shape of prints. Similarly, a workman *occasions* a piece of wood to carve itself: “I pray, *Madam*, consider rationally, that though the Artificer or Workman be the occasion of the motions of the carved body, yet the motions of the body that is carved, are they which put themselves into such or such a figure, or give themselves such or such a print as the Artificer intended” (PL 78-9).

Suppose Alex taps Barbara on the shoulder, and then Barbara stands up. Alex *occasions* Barbara’s motion. She moves because of him, though under her own power. Cavendish explains the appearance of causal interaction similarly. Although one body cannot *produce* another body’s motion, it can *trigger* another body’s exercise of self-motion. As Cavendish writes, “one body may occasion another body to move so or so, but not give it any motion” (PL 100). The example of Alex and Barbara only takes us so far, since Alex presumably causally impacts Barbara when he taps her on the shoulder, which Cavendish has already ruled out. To understand Cavendish’s view, then, we need an account of how a body can trigger another body’s movements without causal impact.²⁰

According to the standard reading, when a person’s hand occasions a bowling ball to move itself, (i) the ball perceives the hand, and then (ii) responds appropriately. As Detlefsen writes, “[t]he causal efficacy among natural bodies on a model of occasional causation takes the form of bodies *sensing* others around them and *knowing* how to react to these other bodies” (Detlefsen 2007: 168; see also O’Neill 2001: xxxiii-iv). This reading assimilates ordinary transactions between apparently inanimate bodies—like the transaction between a hand and a ball, or two billiard balls—to social interactions. Just as Barbara perceives Alex’s tap on the shoulder and responds

²⁰ Pace O’Neill (2013).

appropriately, so too does the ball perceive the hand, except that this perception occurs without any true causal interaction.

The standard reading invites an infinite regress. When a hand occasions a ball's motion, the ball perceives the hand—call this perception₁—and then determines its own motion accordingly. The ball's perception₁ of the hand presumably requires just as much explanation as the ball's motion, however. Both are responsive to the hand. Hence, the hand occasions the ball to produce perception₁ in itself. If occasional causation always presupposes a prior perception, then the ball requires a further perception—call this perception₂—to take the state of the hand into account when it produces perception₁. And then the regress looms. Basically, the worry is that we cannot explain occasional causation in terms of perception because perception itself requires an occasional cause. In other words, we cannot explain the responsiveness of bodies to other bodies in terms of perception because perception is itself a form of responsiveness that needs explanation.²¹

O'Neill (2001) argues that Cavendish avoids this regress by taking perception as a basic or primitive form of responsiveness that explains all the other forms. This blocks the regress by denying that the ball's perception₁ requires the same kind of explanation as the ball's subsequent

²¹ O'Neill formulates the problem as follows: "The question raised above was how an occasional cause (e.g., the hand) could induce the primary cause (e.g., the ball) to bring about change (e.g., to move). It may look as if Cavendish's explanation in terms of the perceptions of the sympathetic parts of nature just pushes the initial question back a stage. Now we can ask: how does an occasional cause induce the primary cause to have the perception that it does, if there is no direct physical causation at work" (O'Neill 2001: xxxiv). See also James (1999: 235) and Detlefsen (2007: 168).

motion. As O'Neill writes: "the power that the ball has to 'pattern out' or imitate certain perceptions, and the power that the hand has to trigger these perceptions are the bedrock explanation of the ball's motion on the occasion of the action of the hand" (2001: xxxiv; see also James 1999: 235-6). O'Neill's solution makes a body's perceptions prior to its self-motion. This is a problem, however, since Cavendish suggests that perception is an effect of and downstream from motion. As Cavendish writes, for example, "all perception and variety in Nature, is made by corporeal self-motion" (*PL, Preface*, unnumbered page) and "[p]erception is but the effect of the Sensitive and rational Motions, and not the Motions of the Perception" (*PL* 18). Similarly, she writes that "the cause of Perception is Self-Motion" (*GNP* 8). O'Neill is right that perception is intimately bound up with motion. But her solution to the regress problem gets this relation backwards. Perception is posterior to motion.²²

An adequate reading of occasional causation in Cavendish should respect three desiderata. First, the occasioning body does *not* truly cause the occasioned body to move. Second, the apparent transactions between bodies involve *perception*. As Cavendish writes, "all the various changes of figures and parts . . . cannot be performed without perception: for, all actions are knowing and perceptive" (*OEP* 167; see also 173 and *PL* 61). Third, perception is an *effect* or consequence of motion. While the standard reading respects the first two desiderata, it founders on the third. An alternative account is needed.

²² O'Neill could avoid this problem by distinguishing perception as a basic or primitive form of responsiveness from the more sophisticated kind of human or animal perception she analyzes in terms of patterning. She might then claim that the basic form of perception is *prior* to self-motion, whereas the human or animal form of perception is *posterior*.

I would like to suggest that occasions, for Cavendish, are enabling conditions. On this proposal, the hand *occasions* the bowling ball's motion in that the hand is among the *enabling conditions* or *prerequisites* for the ball's exercise of its own self-motion. Stepping outside of Cavendish's system for a moment, consider, again, a stove heating a kettle. Let us assume—*pace* Cavendish—that the stove causes the kettle to heat. The stove can heat the kettle only when the conditions are right. The kettle must be on the stove and be appropriately disposed, a layer of insulation cannot separate the two, cold air cannot be blowing on the kettle, etc. When these conditions are in place, the stove necessarily exercises its power to heat. Despite the indispensability of these conditions, *the stove* heats the kettle. Or so we ordinarily suppose.

My proposal is that Cavendish retains the distinction between a cause and the enabling conditions that allow it to operate, but that she deploys this distinction in a revisionary way. According to Cavendish, we typically confuse the cause of motion and change with the background enabling conditions. We normally think that the stove is the cause of heating, whereas the lack of an insulating layer is an enabling or *sine qua non* condition. Cavendish holds, instead, that the presence of the stove is an enabling condition on a par with the disposition of the kettle and the lack of insulation. The kettle heats itself.

Bodies respond to external circumstances because these circumstances are the background conditions that enable/constrain the way each bodies exercises its own power. The stove looks like the cause of the kettle's heating because the presence of the stove is a necessary condition for the kettle to heat itself. The hand appears to be the cause of the ball's motion because the presence and motion of the hand is a necessary condition for the ball to exercise its power to move. Instead of appealing to a mysterious form of non-causal influence, this reading reframes the relationship between the occasioned body and the occasioning body in terms of the familiar sense in which causes register or respond to their enabling conditions. No thought or

deliberation is required. The nature of the relevant causal powers is to manifest differently in different situations.²³

Cavendish most explicitly appeals to enabling conditions in her discussions of perception. Early in the *Observations*, Cavendish notes that visual perception has enabling conditions: “When enumerating the requisites of the perception of sight in animals, I say, that ‘if one of them be wanting, there is either no perception at all, or it is an imperfection perception’; I mean, there is either no animal perception of seeing, or else it is an irregular perception’ (*OEP* 16). Later, she enumerates various specific conditions:

there are these following conditions required to the optic perception of an exterior object: First, the object must not be too subtle, rare, or little, but of a certain degree of magnitude; Next, it must not be too far distant, or without the reach of our sense; then, the medium must not be obstructed, so as to hinder our perception. And lastly, our optic “sensorium” must be perfect, and the sensitive motions regular; of which conditions, if any be wanting, there is either no perception at all, or it is an imperfect perception. (*OEP* 82; see also 77, 136, 149 & 184)

These conditions flesh out Cavendish’s view that perception requires objects (*OEP* 163, 172; and *GNP* 8). Perceiving a cat, for example, does not merely require that a cat exist somewhere in the universe. Perceiving a cat presupposes light, proximity, an unobstructed view, etc. When these conditions obtain, the perceiver’s matter arranges itself into a perception of a cat. The suggestion, then, is that Cavendish’s occasional causes are what she calls *requisites* or *conditions* when discussing perception.

²³ A body’s self-motion, on this reading, is a multi-track power. See Vetter (2013).

In the example of the stove and kettle, I suggested that *when* all the enabling conditions are in place, the stove necessarily heats the kettle. Cavendish's view is more nuanced. Sometimes the enabling conditions or occasions force or necessitate a body to act in a certain way—à la the stove and kettle—and sometimes they do not. In *Philosophical Letters* I.29, for example, Cavendish indicates that sometimes the parts of nature are forced to act in a certain way by other parts, and sometimes not:

all the actions of nature are not forced by one part, driving, pressing, or shoving another, as a man doth a wheel-barrow, or a whip a horse; nor by reactions, as if men were at foot-ball or cuffs, or as men with carts meeting each other in a narrow lane . . . (*PL* 95; see also 155, 356-7, 443; PPO-1663 193-194; *GNP* 6)

A body's surroundings—i.e., the enabling conditions or occasions—narrow the body's options for producing changes in its own substance. Sometimes a body's surroundings narrow the options down so much that it only has one option left: i.e., so that the body must produce *one* change in itself. When someone pushes a wheelbarrow, for example, the wheelbarrow is forced to move itself forward. When someone throws a ball, its only way forward is up. The occasional cause—the hand—forces or necessitates the ball to move upwards. In other situations, however, a body's surroundings leave multiple paths open. When someone is deciding what to eat for breakfast, nothing forces them to choose oatmeal or eggs.

This point emerges even more clearly in the continuation of *Philosophical Letters* I.29:

I do not say, That man hath an absolute Free-will, or power to move, according to his desire; for it is not conceived, that a part can have an absolute power: nevertheless his

motion both of body and mind is a free and self-motion, and such a self-motion hath every thing in Nature according to its figure or shape; for motion and figure, being inherent in matter, matter moves figuratively. Yet do I not say, That there is no hindrance, obstruction and opposition in nature; but as there is no particular Creature, that hath an absolute power of self-moving; so that Creature which hath the advantage of strength, subtilty, or policy, shape, or figure, and the like, may oppose and over-power another which is inferior to it, in all this; yet this hinderance and opposition doth not take away self-motion. (*PL* 95-6)

The parts of nature do not have absolute power: they cannot produce just any change in themselves.²⁴ A human being cannot transform themselves into an eagle, and a square peg cannot magically fit in a round hole. A body's power of self-motion is limited by the surrounding parts. Sometimes a body's power of self-motion is so completely limited by the surrounding parts that it is overpowered by them. In this case, a body is forced or necessitated by its surroundings to move just so. Nevertheless, as Cavendish reminds us, "this hindrance and opposition doth not take away self-motion" (*ibid.*).²⁵ Self-motion—a body's ability to produce changes in itself—does not require a principle of alternative possibilities. In other cases, a body's power is somewhat limited by its surroundings, but without being forced down a single path. Bodies are not *always* overpowered.

Commentators divide on whether Cavendish's nature is a world of libertarian freedom or deterministic through and through. Detlefsen (2006, 2007) and Boyle (2018) take every part of nature to be radically free in the libertarian sense. Every part of nature is unconstrained by the

²⁴ *Pace* Detlefsen (2006, 2007) and Boyle (2018).

²⁵ See also 539.

state of every other part, though guided throughout by nature’s wisdom. We have a choice not merely about whether we will get out of bed in the morning, but whether we will follow the laws of nature. Cunning (2016: 155) and Lascano (2023: 141-2), in contrast, take every part of nature to be constrained and determined by its history and the other bodies in its vicinity. We do not choose whether we will fall when we trip over our feet. On Cunning’s and Lascano’s views, bodies are free only in a weaker, compatibilist sense. My reading splits the difference between these interpretive options. Sometimes a body’s circumstances leave multiple options genuinely open, whereas sometimes they do not.²⁶

Still, we need an account of how perception fits in, given Cavendish’s claim that “all the various changes of figures and parts . . . cannot be performed without perception: for, all actions are knowing and perceptive” (*OEP* 167). I think that a body’s registration of its surroundings—the fact that its power of self-motion is constrained and limited by the parts in its vicinity—just is what Cavendish means by perception in the generic sense that is ubiquitous in nature.²⁷ The ball perceives the hand in the sense that the ball’s power of self-motion is shaped and limited by the state and motion of the hand. “All actions are knowing and perceptive,” then, because nothing acts in a vacuum (*ibid.*). A body’s self-motion is invariably conditioned by its surroundings, and

²⁶ This more nuanced approach suggests a way of understanding Cavendish’s claims that rational matter is freer than sensitive matter because it is free *from* the hindrances of inanimate matter: namely, that rational matter typically has more options left open because it operates independent from inanimate matter; or, in other words, that sensitive matter has fewer options because it invariably operates with and in the inanimate degree.

²⁷ Presumably a different story will be required to account for animal perception/patterning that is characteristic of human beings and other animals with sense organs.

the body perceives these surroundings just to the extent that this conditioning occurs. Perception is an effect of motion in that it reflects the way self-motion is constrained.

My reading fares better than the standard one with regards to our three desiderata. First, my reading explains the sense in which occasions are contributing factors without being true causes, since enabling conditions contribute to what happens despite not being efficient or productive causes. Second, it explains why Cavendish holds that every action or motion involves perception. Every action or motion is shaped by the circumstances in which it occurs, and this responsiveness to circumstances just is a form of perception. Third, my reading does justice to Cavendish's claim that perception is an effect of motion. On my reading, perception is an aspect of the way things move, namely, in a way that takes surrounding parts into account.

4. Conclusion

Cavendish's view that all motion is self-motion raises a question about the relevant units of agency. Who or what are the selves that move themselves? The answer, of course, is *bodies*. But the individuation of bodies in Cavendish's system is far from clear. In the examples discussed so far—the hand and the bowling ball, the tracks in the snow, or the stove and the kettle—we have dealt with bodies that are well individuated and distinct. This simple picture is complicated, however, by the fact that bodies are typically made up of other bodies, with parts nested inside of parts. A human body, for example, is made up of head, shoulders, feet, and toes. These parts are then made up of sinews, tendons, bones, and flesh. These can be further decomposed into cells, and down the mereological rabbit hole we go (*OEP* 126-7).

A full account of Cavendish's system would need to explain the relationship between the self-motion of a whole and the self-motions of the parts that make it up.²⁸ We would need to explain, for example, the interactions between the self-motion of the whole person and the self-motions of their appendages and organs. I don't know exactly how this story should go. But here is a sketch. Just as a body's power of self-motion is limited and constrained by the surrounding parts, so too a body's power is shaped from above and below. Its power depends both on the *wholes* of which it is a part, as well as the *parts* from which it is composed.²⁹ Consider a hand. The hand's power to move itself is not absolute. There is a complex interplay between the activities of the whole person, the hand, and the parts that make up the hand. This interplay shapes what the hand can do. When someone voluntarily raises their hand, for example, the whole determines the movement of its parts, viz., the hand. This voluntary movement constrains—from above—the hand's self-motion. When someone absent-mindedly taps their fingers, in contrast, the hand determines its own movements. But the tapping depends on the cooperation of the bones and sinews that make up the hand.

On first hearing, Cavendish's account of self-motion seems wildly implausible. Bowling balls roll themselves?! Her arguments for this position, however, are powerful. In addition to criticizing the transfer model of body-body interaction, she presses trenchant objections against the very

²⁸ Detlefsen (2007: 233) worries about a cosmic version of this question, when she tries to square the power of the whole of nature with the powers of individual bodies. A structurally similar problem arises even when dealing with ordinary bodies composed of bodies, such as a human being.

²⁹ I agree with Lascano (2023) here: “[t]he fact that nature works like a [living] body explains why Cavendish's texts sometimes look like she is positing a top-down system and sometimes a bottom-up system—both are included” (120).

idea that one body can act *in* another body. She offers compelling reasons to prefer her positive view that bodies move themselves over other alternatives, such as the view that immaterial things move bodies. Finally, she can explain how an external body occasions another body to move in a certain way, despite banning genuine body-body interaction.

Move your body! No one and nothing else can do it for you.

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