

Lisa Downing
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Locke's Ontology

1. Introduction

One of the deepest tensions in Locke's *Essay*, a work full of profound and productive conflicts, is one between Locke's metaphysical tendencies—his inclination to presuppose or even to argue for substantive metaphysical positions—and his devout epistemic modesty, which seems to urge agnosticism about major metaphysical issues. Both tendencies are deeply rooted in the *Essay*. Locke is a theorist of substance, essence, quality. Yet, his favorite conclusions are epistemically pessimistic, even skeptical; when it comes to questions about how the world is constituted, our understandings cannot penetrate very far. Locke seems torn between metaphysics and modesty, between dogmatism and skepticism. This chapter will consider two specific examples of this sort of tension. The first involves the ontology of body, and the second, the ontology of mind.

The conflict concerning bodily natures looks like this: As is well-known, Locke typically describes bodies in the terms of the corpuscularian science of his day, as exemplified especially by the natural philosopher Robert Boyle. Locke's characterizations of the real essences of bodies are mechanist. He envisions them as corpuscularian textures-- spatial arrangements of particles possessing size,

shape, solidity, motion.¹ Thus, Locke seems inclined to presuppose a corpuscularian account of the natures of bodies. Furthermore, in making his famous distinction between primary and secondary qualities, Locke sometimes seems (as in E II.viii.9) to be putting forward *arguments* in favor of a corpuscularian ontology, that is, in favor of the view that bodies can be completely described in terms of size, shape, solidity, motion, and spatial arrangement. This is Locke's dogmatic side: it seems that he thinks that we can determine that the nature of bodies is captured by mechanist theory. On the skeptical side, however, Locke modestly proclaims that corpuscularianism is merely an hypothesis, and an hypothesis whose truth value lies outside the scope of the *Essay's* concerns. Any resolution to this tension will have implications for Locke's distinction between primary and secondary qualities, his understanding of real essences, and his philosophy of science.

The second tension to be examined, concerning the nature of mind, looks even more dramatic, for here Locke seems saddled with an outright contradiction. Here, Locke's dogmatic side can be precisely located: its site is his proof of God's existence. More specifically, in the course of his argument (in E IV.x) for the traditional, substantive metaphysical claims that (1) an eternal, most powerful, thinking thing exists and that (2) that thing, i.e. God, is not material, Locke seems to argue that no materialist account of thought and volition is

¹ For present purposes, I will use "mechanist" and "corpuscularian" interchangeably. The meaning of "corpuscularian" is, I take it, fixed by Boyle, who coined that term (Boyle 1991: 4; Boyle 1999-2000: V: 289). The meaning of "mechanist" is more fluid, but it is uncontroversial that Boyle's corpuscularianism, as expressed in the *Origin of Forms and Qualities*, is a mechanist theory. Below I also use the phrase "strict mechanism" to specifically denote the view that all macroscopic bodily phenomena should be explained in terms of the motions and impacts of submicroscopic particles, or corpuscles, each of which can be fully characterized in terms of a strictly limited range of (primary) properties: size, shape, motion (or mobility), and solidity or impenetrability.

possible. Yet just a few chapters earlier in E IV.iii, in his agnostic mode, Locke defends (at great risk to his reputation) the theologically dangerous proposition that for all we know, matter might think; that is, our thinking might be carried out by matter, rather than by some sort of immaterial, spiritual substance. For Locke's contemporaries, especially his critics, this was one of the most striking features of the *Essay*—Locke was seen as threatening our immortal souls and encouraging the worst sorts of free-thinking by allowing for the (epistemic) possibility of thinking matter. Locke argues that, although we cannot understand how matter could think, because we *also* cannot understand how a material and a spiritual substance could causally interact,² we ought to modestly rest in agnosticism:

For since we must allow he [our Maker] has annexed Effects to Motion, which we can no way conceive Motion able to produce, what reason have we to conclude, that he could not order them as well to be produced in a Subject we cannot conceive capable of them, as well as in a Subject we cannot conceive the motion of Matter can any way operate upon? (E IV.iii.6: 541)

This is to say that we cannot know whether dualism or materialism is true of finite thinkers. This agnosticism about thinking matter, so controversial in Locke's day, looks appealing and insightful in our own. Unfortunately, it seems to land Locke in contradiction: He appears to support both the dogmatic, dualist claim that materialism (about any thinkers) cannot be true and the agnostic/skeptical claim that we do not know whether or not materialism (about finite thinkers such as ourselves) is true.

We will see that both of these tensions can be resolved. The first will be dealt with quickly, in section 2. The second will occupy us for the rest of the

² Nor even how a spiritual substance might think (E II.xxiii.25: 309).

chapter. What we gain by resolving these tensions, in addition to clearing Locke of charges of inconsistency, is an accurate understanding of Locke's ontology of body and mind. Locke does not in fact waver unsteadily between dogmatism and skepticism; a consistent thread can be woven among his positions.

Moreover, reflection on the implications of these positions will provide us with a better understanding of the level of his metaphysical commitments and their basis.

2. Ontology of body: the status of mechanism

In this section, the interpretation I offer will be argued for in a somewhat peremptory fashion. There are three reasons for this. (1) I have argued for this interpretation of Locke elsewhere (Downing 1998). (2) The questions at issue here overlap significantly with those treated in other chapters of this volume. (3) The interpretation offered will be reinforced by its fit with the conclusions drawn in later sections of this chapter, from issues concerning Locke's ontology of mind.

As noted in the introduction, the puzzle concerning Locke's ontology of body stems from the fact that Locke typically characterizes bodies, physical substances, from the perspective of the new mechanist science—as configurations of particles analyzable entirely in terms of size, shape, solidity, and motion/rest. Is he presupposing the truth of Boylean corpuscularianism—just founding the *Essay* on the best scientific theory going?³ Does he think he can give philosophical arguments for this account of the nature of body (as he might seem to be doing with the thought experiment about the grain of wheat in E

³ Many scholars have suggested this in one way or another, most notably Peter Alexander (Alexander 1985: 6-7). See also Mandelbaum 1964: 1-3, Yolton 1970: 11.

II.viii.9)?⁴ Or, on the other hand, should we take him at his word when he declares corpuscularianism to be an hypothesis, and an hypothesis whose truth goes beyond the concerns of the *Essay*? For surely that is what he straightforwardly states as his position:⁵

I have here instanced in the corpuscularian Hypothesis, as that which is thought to go farthest in an intelligible Explication of the Qualities of Bodies; and I fear the Weakness of humane Understanding is scarce able to substitute another, which will afford us a fuller and clearer discovery of the necessary Connexion, and *Co-existence*, of the Powers, which are to be observed united in several sorts of them. This at least is certain, that which ever Hypothesis be clearest and truest, (for of that it is not my business to determine,) our Knowledge concerning corporeal Substances, will be very little advanced by any of them, till we are made see, what Qualities and Powers of Bodies have a *necessary Connexion or Repugnancy* one with another; which in the present State of Philosophy, I think, we know but to a very small degree: And, I doubt, whether with those Faculties we have, we shall ever be able to carry our general Knowledge (I say not particular Experience) in this part much farther. (E IV.iii.16: 547-8)

I suggest that we take Locke quite literally here. Corpuscularianism functions in the *Essay* as an *instance* or *example*. But an instance of what exactly?

An answer to that question is indicated in E III.iii.15-17:

First, Essence may be taken for the very being of any thing, whereby it is, what it is. And thus the real internal, but generally in Substances, unknown Constitution of Things, whereon their discoverable Qualities depend, may be called their *Essence*. This is the proper original signification of the Word, as is evident from the formation of it; *Essentia*, in its primary notation signifying properly *Being*. And in this sense it is still used, when we speak of the *Essence* of particular things, without giving them any Name. (E III.iii.15: 417)

Concerning the real Essences of corporeal Substances, (to mention those only,) there are, if I mistake not, two Opinions. The one is of those, who using the Word *Essence*, for they know not what, suppose a certain number of those Essences, according to which, all natural things are made, and wherein they do exactly every one of

⁴ E.g. Norbert and Hornstein 1984.

⁵ See also E IV.iii.11: 544.

them partake, and so become of this or that *Species*. The other, and more rational Opinion, is of those, who look on all natural Things to have a real, but unknown Constitution of their insensible Parts, from which flow those sensible Qualities, which serve us to distinguish them one from another, according as we have Occasion to rank them into sorts, under common Denominations. (E III.iii.17: 417-8)

As Locke explains it here, the real essence or real constitution of something is what makes the thing be what it is.⁶ Locke understands this as meaning that it is what causes something to have the discoverable qualities that it has. He mentions two opinions about what these real essences might be like, in the case of corporeal (bodily) substances: (1) the purportedly unintelligible scholastic opinion and (2) a broadly corpuscularian opinion according to which discoverable qualities flow from an internal constitution of submicroscopic parts. The corpuscularian hypothesis thus provides an *instance* or *example* of what the real essences of bodies might be like.⁷

In providing an example of what the real constitutions of bodies might be like, corpuscularianism also provides an example of what the primary qualities of bodies might be. On this interpretation, Locke's core notion of primary quality emerges as that of an intrinsic and irreducible quality.⁸ It is a metaphysical notion at the same level as and logically linked to the metaphysical notion of real essence. Locke acknowledges this logical connection at E IV.vi.7: 582, where he writes of secondary qualities as depending upon real constitutions.

⁶ This notion of real essence is the one that, following Guyer 1994: 133-4, I label "real constitution" in section 6 below. See footnotes 30-32.

⁷ Locke's discussion at E III.iii.15-17 is in fact complex in ways that cannot be fully addressed here. Part of Locke's negative characterization of the scholastic opinion derives from its failure to distinguish between real and nominal essences, whereas the more rational modern opinion realizes that *types* of substances must be set by our ideas.

⁸ I take it that this is what Locke means by contrasting qualities which "*are really in them* [objects], whether any ones Senses perceive them or no" (2.8.17) and are therefore primary, vs. those which are "*imputed*" (2.8.22) and "nothing in the Objects themselves, but Powers" (2.8.10) and are therefore secondary.

More typically, Locke describes secondary qualities as depending on primary qualities, but the two formulations are both appropriate, since a real constitution is a particular combination of intrinsic and irreducible (primary) qualities, a combination that is responsible for some relevant set of observable qualities, including secondary ones. Corpuscularianism provides an example of what might fill these metaphysical roles, and in doing so, illustrates what it would be for observable qualities to flow from a real constitution, and for secondary qualities to be produced by primary ones.

It would be misleading to say that it is *merely* an illustration, however, since Locke clearly sees corpuscularianism as in some way unique among natural philosophies (scientific theories). Locke views the theory as uniquely natural to us, for it asserts that bodies are as we conceive them to be via some simple reflection on sensory experience. This, I suggest,⁹ is what Locke is getting at in E II.viii.9: 134-5, where he argues¹⁰ that the corpuscularian list of primary qualities—solidity, extension, figure, and mobility—reflects what “Sense constantly finds in every particles of Matter” and “Mind finds inseparable from every particle of Matter.” Locke is pointing out the theory’s special status as our natural physics, but this does not reflect an official commitment to the truth of the theory.¹¹ Because of corpuscularianism’s naturalness, its clarity (based as it is on simple ideas of sensation), and its reductive character (promising to explain many qualities in terms of a few), it provides a uniquely good *illustration* of the

⁹ See also McCann 1994: 59-62.

¹⁰ The argument is less than fully convincing, though the basic point about the psychological naturalness of a mechanist notion of body is surely pretty plausible.

¹¹ Contra Jacovides 2002: 178, this is not to say that Locke did not believe corpuscularianism to be true. What I am specifically denying is that the central doctrines of the *Essay* presuppose or depend on the truth of corpuscularianism. As emerges below, however, I also think that by sometime in the 1690’s, Locke had concluded that strict mechanism could not be true because of its inability to explain Newton’s results.

abstract notions of real essence and primary quality. Further, the corpuscularian example allows us to grasp the ideal of scientia—the sort of knowledge we would ideally have if we knew the real essences of things, wherein we could deduce the observable qualities and powers of bodies from their internal constitutions.¹² Corpuscularianism’s apparent ability to model the flow of physical behavior from essences is highlighted by the lock and key analogy. Locke suggests that if we knew the corpuscularian real essences of opium and human being, we would understand why opium has its famous dormitive power in the same way that we understand why a certain key has the power to turn a certain lock. Moreover, we would be able to assert "without Trial" that opium can put humans to sleep (E IV.iii.25: 556)¹³

Scientia is what we aspire to by way of knowledge of substances, Locke holds, but it eludes us for a trio of increasingly grave reasons. First, *if* corpuscularianism is the correct theory, the real essences of physical things are

¹² For this ideal of deducibility, see E II.xxxi.6: 379 (and also E IV.vi.11: 585, quoted in section 5).

¹³ For a nice illustration of how corpuscularianism might promise deductive explanations, see Alexander 1985: 161. Rozemond and Yaffe (2004) have argued that Locke does not see mechanism as promising deductive explanation from real essences, but instead sees it as offering and actually providing a different sort of explanation—mechanistic explanation. This interesting proposal, as they acknowledge, faces some difficulty in characterizing this different sort of explanation (a difficulty which they plausibly connect to the recurring difficulty of analyzing the supposed special intelligibility of mechanism). There is also a textual issue here. In *Some Thoughts Concerning Education* (TE: 244-8), Locke characterizes corpuscularianism as one of the systems of natural philosophy that pretends “to give us a body of *Natural Philosophy* from the first Principles of Bodies in general”. That is, it aims at scientia, demonstration from real essences, but fails to achieve it. The only actual virtue of corpuscularianism, compared to other schools, is its clear, intelligible language. Locke does not mention here any special explanatory success had by corpuscularianism and he seems to go out of his way not to recommend the system as actually useful. This fits with my own view that Locke sees corpuscularianism as a uniquely good illustration of what scientia, deductive knowledge from real constitutions *would be* like although (at least by the 1690’s) he does not think corpuscularianism will actually provide it.

It should be noted that Locke’s attachment to corpuscularianism does shift over time, with Draft C of 1685 representing the strongest apparent degree of attachment. For more on the chronology of Locke’s views here, see Downing forthcoming.

not available to us because of their minuteness.¹⁴ Second, *if* corpuscularianism is the correct theory, we will be left unable to explain cohesion, the communication of motion, and body-mind interactions. That is, as Margaret Wilson (1979) has emphasized, Locke goes out of his way to point out in the *Essay* that corpuscularianism, though it promises scientia, cannot deliver on that promise because of explanatory gaps in the theory. Third, corpuscularianism might not be the right theory, in which case a deductive understanding of the qualities of bodies is “yet more remote from our Comprehension” (E IV.iii.11: 544). For Locke in the *Essay*, the second point reinforces the third point. That is, the explanatory failures of corpuscularianism reinforce the otherwise merely abstract possibility that it might not in fact provide the correct account of what the primary qualities of bodies are and what the real essences of bodies are like. Thus, we have reason to back away from our natural physics.

I have argued that when it comes to Locke’s ontology of body, the conflict between skepticism and dogmatism, modesty and metaphysics, can be adjudicated in favor of skepticism/modesty. Locke, though he views corpuscularianism as our natural physics, does not commit himself to the truth of the theory. Its official role in the *Essay* is to illustrate the more basic notions of real essence and primary quality. This resolution raises a further question, however, about the nature and basis of Locke’s commitment to these more abstract, metaphysical notions. This question, however, we should defer until we can approach it again through considering Locke’s ontology of mind.

¹⁴ Locke views this as a practical problem that we are unlikely to overcome, not as an in principle barrier (Downing 1994).

3. Ontology of mind: the contradiction

As we observed in section 1, Locke's ontology of mind seems deeply conflicted. He typically writes as a dualist, but his official position (judging from E IV.iii as well as the correspondence with Stillingfleet) is that materialism about finite minds cannot be ruled out. Thus far there is no contradiction, of course. The gravest challenge to attributing a consistent position to Locke comes from his proof of God's existence, which seems to entail that thought cannot be carried out by mere matter. It appears, then, that Locke commits himself to contradictory claims: that we know that matter cannot think and that we do not know whether some matter does think. I will argue that this contradiction is resolvable, though the resolution comes at a price—it requires us to carefully reconsider our views about (1) what gets proved in proving God's immateriality and (2) what the hypothesis of thinking matter amounts to.

The discussion will proceed as follows: First, we will consider a number of apparently straightforward and attractive ways of dissolving or resolving the contradiction. These options turn out, I will argue, to be unsatisfactory. Having refocused the inquiry on Locke's notion of superaddition, we will examine one prominent account of this notion that would also permit a resolution of the contradiction. On this interpretation, God might superadd thought to matter as an extrinsic power. Leibniz thought this an unattractive view to attribute to Locke, but it is not obvious what alternative is available. In section 6, I carve out an alternative understanding of the superaddition of thought to matter, compatible with the essentialism that Michael Ayers has attributed to Locke. I argue that the bulk of the available evidence favors attributing this understanding of superaddition to Locke. We will then examine the

consequences of this new reading of superaddition for both the hypothesis of thinking matter and the proof of God's immateriality. Lastly, we may conclude by briefly reflecting on what this resolution reveals about the extent of Locke's metaphysics and the nature of his commitment to that metaphysics.

The first step in resolving the contradiction, however, is to characterize it more precisely through an examination of Locke's proof of God's existence. Locke begins by proving (purportedly) that an eternal thinking thing, most knowing and most powerful, exists. He then turns to the question of whether this eternal thinking thing might be material. Locke argues against the possibility of such a Hobbesian material God as follows: Either (1) every particle of matter thinks or (2) only one atom does or (3) thought arises from some system of matter. The first is dismissed as absurd, the second as arbitrary and absurd, but the third requires further consideration:

...it only remains, that it is *some certain System of Matter* duly put together, that is this *thinking eternal Being*. This is that, which, I imagine, is that Notion, which Men are aptest to have of GOD, who would have him a material Being, as most readily suggested to them, by the ordinary conceit they have of themselves, and other Men, which they take to be material thinking Beings. But this Imagination, however more natural, is no less absurd than the other: For to suppose the eternal thinking Being, to be nothing else but a composition of Particles of Matter, each whereof is incogitative, is to ascribe all the Wisdom and Knowledge of that eternal Being, only to the *juxta*-position of parts; than which, nothing can be more absurd. For unthinking Particles of Matter, however put together, can have nothing thereby added to them, but a new relation of Position, which 'tis impossible should give thought and knowledge to them.

But farther, this *corporeal System* either has all its parts at rest, or it is a certain motion of the parts wherein its Thinking consists. If it be perfectly at rest, it is but one lump, and so can have no privileges above one Atom.

If it be the motion of its parts, on which its Thinking depends, all the Thoughts there must be unavoidably accidental, and limited; since all the Particles that by Motion cause Thought, being each of them in it self without any Thought, cannot regulate

its own Motions, much less be regulated by the Thought of the whole; since that Thought is not the cause of Motion (for then it must be antecedent to it, and so without it) but the consequence of it, whereby Freedom, Power, Choice, and all rational and wise thinking or acting will be quite taken away.... (E IV.x.16-17: 627)

Surely this looks like an argument that, *if* it rules out a material God, *also* rules out material thinkers of *any* kind, and thus motivates dualism.¹⁵

4. Easy resolutions sketched and rejected

A tempting interpretive strategy at this point is to try to minimize the force or scope of Locke's conclusion in order to preserve agnosticism about thinking matter. Michael Ayers (1981: 240) attempts to narrow the proof's scope by arguing that Locke's main point is that because thought can only be a

¹⁵ This point merits elaboration: Of course, the conclusion that Locke wants here is specifically that God—the eternal, most powerful, most knowing thing—cannot be material. But his argument has broader implications. How could matter then be made to think at all? Arranging the particles in some special way won't do, since "'tis impossible" this "should give thought and knowledge to them. Will setting them in motion help? Since the particles themselves are unthinking (it being absurd that all matter thinks or that some particular atom does) their motions will be unregulated and thus cannot constitute rational thought, etc.. Here it might be objected that once an immaterial God is established, he can do the regulating so that ordinary finite thinkers could just be ordinary mechanist matter. But what form will the regulation take? Configuring the system in some particular arrangement won't work. Configuring the system and then setting it in motion won't work. Could God somehow set up the merely material system so that its motions are self-regulating? The suggestion would have to be that if the preceding motion of the system is of the right (thought-constituting) kind, it could somehow guide the next motion appropriately. Locke cannot mean to allow this, since then the possibility that God is such an eternally self-regulating merely material system could not be eliminated. (To eliminate this possibility is, after all, the point of the argument. Locke's argument here is *not* that it is enormously unlikely that God is a merely material being. As noted in section 4, Locke claims in E IV.iii.6 that he has shown in IV.x that it is a *contradiction* for God to be material.) That Locke views this suggestion as a non-starter is, moreover, clearly implied by the first paragraph (sect. 16): spatial arrangement is a relation of position, and motion is a relation of position that changes over time; these are all that can be added to particles of matter, and neither can give thought to them. (That is to say, section 16 is supposed to be a self-standing argument that a system of mere matter, in whatever state, cannot produce divine thought, because it cannot produce thought. Section 17 then reconsiders the *same* question via a dilemma—is the system in motion or at rest?) The third paragraph seems not to foreclose the possibility that God might configure a system, move it, and *perpetually* regulate that motion so that it could constitute wise thought. But this proposal has three strikes against it: (1) This sort of occasionalist materialism is not what the hypothesis of thinking matter was supposed to amount to. (2) The first paragraph again rules it out as impossible: no matter how nicely God shifts the positions of particles of matter, this can't bestow thought. (3) The passage itself suggests the thought that an other-regulated system of this kind could not constitute a rational and free thinker.

contingent, not an essential, property of matter, its presence in matter requires explanation; thus, to attribute thought to a material *first* cause is unacceptable. Though this is certainly one argumentative strand that can be seen in E IV.x,¹⁶ it offers little help in saving the possibility of thinking matter. For the problem for thinking matter is created by the fact that the only obvious way for thought to be *contingently* added to matter, by configuring some system of matter and setting it in motion, cannot succeed, according to Locke's argument in E IV.x.

An obvious rationale for minimizing the *force* of the proof is that the context is charged by religious concerns. One might suggest that in order to distinguish himself from Hobbes' heterodoxy, Locke is tempted to overzealously present what are in fact intelligibility considerations. Locke holds that although intelligibility considerations do weigh against thinking matter, they are countered by intelligibility problems with dualism. On this interpretation, Locke's true position in the "proof" of God's immateriality would be just that this same balance does not obtain in the case of God, where Locke is content to presuppose that some version of the traditional Christian conception of God is intelligible or at least does not present the sort of challenge to the understanding posed by a Hobbesian God. Thus, intelligibility problems with a material God, which are essentially the *same* intelligibility problems that confront thinking matter,¹⁷ in this case properly motivate us to reject the problematic hypothesis, because an intelligible *alternative* is available.¹⁸

¹⁶ Ayers point is especially useful in understanding Locke's remarks in the correspondence with Stillingfleet at W IV: 469. If this were the only consideration raised in E IV.x against God's materiality, however, the chapter would presumably have been quite a bit shorter.

¹⁷ Or, at least, they include the same intelligibility problems.

¹⁸ See Jacovides 2002: 183-4 on the moderate epistemic weight that Locke accords to conceivability/intelligibility considerations.

Unfortunately, this attractive suggestion runs up against Locke's own clearly expressed attitude towards his proof:

For I see no contradiction in it, that the first eternal thinking Being should, if he pleased, give to certain Systems of created senseless matter, put together as he thinks fit, some degrees of sense, perception, and thought: Though, as I think, I have proved, *Lib. 4. c. 10th.* it is no less than a contradiction to suppose matter (which is evidently in its own nature void of sense and thought) should be that Eternal first thinking Being. (E IV.iii.6: 541)

It's clear that Locke views the conceptual difficulties with finite material thinkers and with a material God as entirely different in kind. Most significantly, if the claim that God is material is to be a contradiction, then the proof must be demonstrative, and it must amount to a contradiction to suppose that mere matter can think via some arrangement or motion of its parts. I submit that a constraint on any acceptable interpretation of *Locke* on thinking matter is that it should acknowledge the force that Locke accords to his conclusion here.

It is not at all clear, of course, that Locke *should* have accorded his proof this force. If he were to admit that he had only raised a challenge, based on intelligibility considerations, to a material God, the contradiction could be eliminated as suggested above: Locke simply holds that intelligibility considerations militate against a material god, but weigh equally against materialist and dualist accounts of finite thinkers, so that we do not have reason to choose between them. This would provide a sort of epistemological resolution of the contradiction. This is evidently not Locke's view of the situation, however, assuming he writes with consistent sincerity. Our goal here should be to locate a resolution that Locke could have and perhaps actually did endorse. By adhering to Locke's own views, we open up the possibility of learning how he thought not just about thinking matter, but also about some more basic issues.

How then can we understand the hypothesis of thinking matter? Locke's own, all too brief, attempt to reconcile these doctrines in the *Essay* takes place in the quote just given and the lines leading up to it:

We have the *Ideas* of *Matter* and *Thinking*, but possibly shall never be able to know, whether any mere material Being thinks, or no; it being impossible for us, by the contemplation of our own *Ideas*, without revelation, to discover, whether Omnipotency has not given to some Systems of Matter fitly disposed, a power to perceive and think, or else joined and fixed to Matter so disposed, a thinking immaterial Substance: It being, in respect of our Notions, not much more remote from our Comprehension to conceive, that GOD can, if he pleases, superadd to Matter a Faculty of Thinking, than that he should superadd to it another Substance with a Faculty of Thinking; since we know not wherein Thinking consists, nor to what sort of Substances the Almighty has been pleased to give that Power, which cannot be in any created Being, but merely by the good pleasure and Bounty of the Creator. (E IV.iii.6: 540-1)

Locke's claim that God may superadd to matter a faculty of thinking allows us to usefully re-label our problem: What we want to understand is the superaddition of thought to matter. How is it possible and what sort of process, if any, is it?

In one passage from the correspondence with Stillingfleet (the site of Locke's most extended discussion of the issue), Locke seems to suggest an easy answer to this question:

The idea of matter is an extended solid substance; wherever there is such a substance, there is matter, and the essence of matter, whatever other qualities, not contained in that essence, it shall please God to superadd to it. For example, God creates an extended solid substance, without the superadding any thing else to it, and so we may consider it at rest: to some parts of it he superadds motion, but it has still the essence of matter: other parts of it he frames into plants, with all the excellencies of vegetation, life, and beauty, which are to be found in a rose or a peach-tree, &c. above the essence of matter in general, but it is still but matter: to other parts he adds sense and spontaneous motion, and those other properties that are to be found in an elephant. (W IV: 460)

One might think from *this* passage that superadding thought to matter could be as easy as setting matter into motion,¹⁹ that is, that it might be done by appropriately arranging and moving some set of merely material parts. Unfortunately, this is precisely what is ruled out by Locke's proof of God's immateriality, according to the constraint argued for above.

Another apparently easy response is suggested by Locke's tendency to invoke the poverty of our ideas in the course of describing the superaddition of thought to matter. Indeed, superaddition often occurs in Locke's thought as an hypothesis to which we are forced by our limited viewpoint. One might thus argue that Locke has no answer to the question—what is superaddition?—because to appeal to God's superaddition of X to Y is just to say that God has bestowed X upon Y in some way that surpasses our understanding. This gives us what Matthew Stuart (1998) has called the epistemic reading of superaddition. On this reading, we can modestly acknowledge our ignorance and God's omnipotence in order to avoid explaining how thought might be added to matter.

The epistemic reading is surely correct in holding that Locke offers no *general* account of what superaddition amounts to, and that the only thing that unites all his references to superaddition is our ignorance. However, invoking an epistemic reading does nothing to dissolve the tension between the God proof and thinking matter. For, of course, Locke does not merely claim in E IV.x that we cannot understand how God could be material, but rather that we can understand that it is impossible for God to be material, for volition and thought

¹⁹ As Ayers (1981: 229, 238) strongly suggests by emphasizing this passage and the analogy between superadding motion to matter and thought to matter.

cannot arise from mere matter in motion.²⁰ Thus, we *do* know that the superaddition of thought to matter cannot simply involve the configuration and motion of purely material parts.

5. The extrinsic powers reading of superaddition

Furthermore, some of Locke's references to superaddition seem to be describing a metaphysical proposal about how an all-powerful God can bestow qualities upon things:

Here are now two distinct substances, the one material, the other immaterial, both in a state of perfect inactivity. Now I ask what power God can give to one of these substances (supposing them to retain the same distinct natures, that they had as substances in their state of inactivity) which he cannot give to the other? (W IV: 464)

...if you mean that certain parcels of matter, ordered by the divine Power, as seems fit to him, may be made capable of receiving from his omnipotency the faculty of thinking; that indeed I say.... (W IV: 468)

Famously, Leibniz saw a metaphysical proposal here, one that he took to be profoundly confused. To put it bluntly, Leibniz thought that Locke's God was arbitrarily attaching powers to bodies not naturally capable of them, that is, that he was taking refuge in scholastic real qualities. His response was to give Locke a rather patronizing little lecture on the proper way to understand modifications:

...it must be borne in mind above all that the modifications which can occur to a single subject naturally and without miracles must arise from limitations and variations of a real genus, i.e. of a constant and absolute inherent nature. For that is how philosophers distinguish the modes of an absolute being from that being itself; just as we know that size, shape and motion are obviously limitations and variations of corporeal nature (for it is plain how a limited extension yields shapes, and that changes occurring in it are nothing but motion). Whenever we find some quality in a subject, we ought to believe that if we understood the nature of both the

²⁰ As Stuart (1998: 366) in effect points out.

subject and the quality we would conceive how the quality could arise from it. So within the order of nature (miracles apart) it is not at God's arbitrary discretion to attach this or that quality haphazardly to substances. He will never give them any which are not natural to them, that is, which cannot arise from their nature as explicable modifications. So we may take it that matter will not naturally possess the attractive power referred to above, and that it will not of itself move in a curved path, because it is impossible to conceive how this could happen - that is, to explain it mechanically - whereas what is natural must be such as could become distinctly conceivable by anyone admitted into the secrets of things. (Leibniz 1981: 65-66; Leibniz 1923-: VI.vi.65-66)

Matthew Stuart has more recently defended Leibniz's interpretation of Locke. He does not share Leibniz's obvious horror at the position he attributes to Locke, an attitude he justifies by couching the interpretation in terms of extrinsic powers anchored in divinely established, voluntaristic laws of nature, rather than bare powers arbitrarily glued onto substances (Stuart 1998: 369-370). A similar interpretation is put forward by Edwin McCann, who explains superaddition in terms of arbitrary laws set by God (McCann 1994, 74-75).²¹ I will refer to this interpretation as the "extrinsic powers" reading of superaddition. A minor weakness in this interpretation is Locke's virtual silence on the question of laws of nature and their status.²² On the other hand, he is famously vocal about the potential explanatory power of real essences. Indeed, Locke's descriptions in the *Essay* of what it would be to know the real essences of things, that we would then understand how all of their properties followed from those essences, just as we

²¹ Langton 2000 also belongs in this camp.

²² As Stuart (1996, 460) acknowledges. McCann (1994: 75) cites E IV.iii.29: 560 as establishing that Locke's God ordains laws as (brute) necessary connections. But what Locke writes here is more naturally read as subordinating laws to causes:

The Things that, as far as our Observation reaches, we constantly find to proceed regularly, we may conclude, do act by a Law set them; but yet by a Law, that we know not: whereby, though Causes work steadily, and Effects constantly flow from them, yet their *Connexions* and *Dependancies* being not discoverable in our *Ideas*, we can have but an experimental Knowledge of them.

That is, where we see a regularity, we infer a law sustained by causes (not a brute law imposed by God). The causes and effects *have* connections and dependencies, though we are ignorant of them.

can deduce the properties of a triangle from its essence, suggest a fundamental sympathy with Leibniz's own picture, in particular, sympathy with the claim that "if we understood the nature of both the subject and the quality we would conceive how the quality could arise from it."²³ A representative example is E IV.vi.11: 585 (see also E II.xxxi.6: 379).²⁴

Had we such *Ideas* of Substances, as to know what real Constitutions produce those sensible Qualities we find in them, and how those Qualities flowed from thence, we could, by the specifick *Ideas* of their real Essences in our own Minds, more certainly find out their Properties, and discover what Qualities they had, or had not, than we can now by our Senses: And to know the Properties of *Gold*, it would be no more necessary, that *Gold* should exist, and that we should make Experiments upon it, than it is necessary for the knowing the Properties of a Triangle, that a Triangle should exist in any Matter, the *Idea* in our Minds would serve for the one, as well as the other. But we are so far from being admitted into the Secrets of Nature, that we scarce so much as ever approach the first entrance towards them.

Michael Ayers has made this side of Locke a centerpiece of his interpretation of the *Essay*, attributing to Locke a "pure mechanism" according to which "the understanding which is in principle possible of mechanical processes is the same in kind as the understanding which can be achieved in geometry" (Ayers 1991: 135).²⁵ Apart from finding this a somewhat idiosyncratic use of "mechanism",²⁶ I am in considerable agreement with Ayers' position here, contra Leibniz, Stuart, and McCann. I will argue, specifically, that there is no good reason to suppose that Locke actually disagrees with anything but the last sentence of Leibniz's little lecture, and thus, no good reason to suppose that he is

²³ See Wilson 1999, 197.

²⁴ For a different interpretation of these passages, see Stuart 1996. Stuart suggests reading such passages as expressing merely deductivism about explanation.

²⁵ See also Ayers 1991 2: 153, 190, and Ayers 1981: 210.

²⁶ The term, applied to a seventeenth century context, typically denotes a far more specific theory, more physical than metaphysical, committed to principle that all bodily action is by impact at contact, as well as to a particular short list of primary qualities. See footnote 1.

committed to superaddition amounting to the arbitrary attaching of powers to bodies. So, in keeping with passages like E IV.vi.11, I will provisionally attribute to Locke what I will call “essentialism”: the view that the qualities and behavior of a body follow from its real constitution (some particular configuration of its intrinsic and irreducible qualities), together with the real constitutions of other bodies and the spatial relations among bodies.²⁷ Essentialism thus rules out an extrinsic powers reading of superaddition.

But what alternative understanding of superaddition is available?²⁸ We should observe that the “extrinsic powers” interpretation, as I will call it, put forward by Leibniz, Stuart, and McCann, has an important virtue: it explains the compatibility of thinking matter with the proof of God’s immateriality. For matter can think, on this interpretation, only through the imposition of nonnatural powers via the forging of (arbitrary) laws of nature. Presumably only God (if anyone) could bring this off; thus, God himself could not be (or always have been) a material being functioning in this way. The extrinsic powers interpretation, then, resolves the contradiction as follows: We know that matter could not think simply by means of size, shape, solidity, and motion/rest. We do not know whether some matter thinks in virtue of God’s having attached further powers to it, not derived from its real constitution. But, if the superaddition of thought to matter is not this sort of arbitrary imposition of powers, what is it, and can it render thinking matter compatible with the proof of God’s immateriality?

²⁷ Arguably, this ought to be called “constitutionalism”. But that term is surely uglier and at least as potentially misleading as “essentialism”.

²⁸ Here I think Ayers fails us, though he makes a crucial point which will help us in the right direction. See note 29 below.

6. Essentialist superaddition

The first step in answering this question is to see where Leibniz went wrong in his Locke interpretation. Leibniz's mistake lay in failing to keep in mind Locke's distinction between real and nominal essences. Here we need to examine the Locke's "peach-tree passage" (cited earlier) at greater length.

The idea of matter is an extended solid substance; wherever there is such a substance, there is matter, and the essence of matter, whatever other qualities, not contained in that essence, it shall please God to superadd to it. For example, God creates an extended solid substance, without the superadding any thing else to it, and so we may consider it at rest: to some parts of it he superadds motion, but it has still the essence of matter: other parts of it he frames into plants, with all the excellencies of vegetation, life, and beauty, which are to be found in a rose or a peach-tree, &c. above the essence of matter in general, but it is still but matter: to other parts he adds sense and spontaneous motion, and those other properties that are to be found in an elephant. Hitherto it is not doubted but the power of God may go, and that the properties of a rose, a peach, or an elephant, superadded to matter, change not the properties of matter; but matter is in these things matter still. But if one venture to go on one step further, and say, God may give to matter thought, reason, and volition, as well as sense and spontaneous motion, there are men ready presently to limit the power of the omnipotent Creator, and tell us he cannot do it; because it destroys the essence, "changes the essential properties of matter." To make good which assertion, they have no more to say, but that thought and reason are not included in the essence of matter. I grant it; but whatever excellency, not contained in its essence, be superadded to matter, it does not destroy the essence of matter, if it leaves it an extended solid substance; wherever that is, there is the essence of matter: and if every thing of greater perfection, superadded to such a substance, destroys the essence of matter, what will become of the essence of matter in a plant, or an animal, whose properties far exceed those of a mere extended solid substance? (W IV: 460-1)

Locke clearly states at the beginning of this passage that we are talking about our *idea* of matter. That is, we are talking about a nominal essence: a complex, abstract idea according to which we sort things into kinds, including the kind—

matter.²⁹ Anything that causes in us ideas of extension and solidity satisfies the nominal essence of matter and thus *is* matter, whatever the real essence, that is, the real, physical constitution that allows it to causally produce those ideas in us. The passage misleads because the series of examples Locke gives next may be taken to suggest that he supposes the real essence of matter to be exhausted by solidity and extension, and that superaddition can then be done simply by reconfiguring that solid, extended stuff. With Leibniz, then, we may be shocked at Locke's continuing on to sense, reason, and volition, when (as we know from the God proof) Locke agrees with Leibniz that thought cannot arise from any arrangement of merely material parts. Note, however, that Locke ends with the same point with which he began: Wherever we have solid, extended stuff, we have the essence of matter; no essences have been violated. In fact this is true in two senses: Of course, the nominal essence remains the same, defined as it is by our abstract idea, and the stuff continues to satisfy it as long as it is solid and extended. We can also be sure that whatever is extended and solid has the real essence of body, since real essences of kinds are officially defined in relation to nominal ones, as whatever sort of real constitution produces the observable qualities cataloged by the nominal essence as definitive of that kind (E III.vi.6: 442).³⁰ This makes "real essence" a rather technical term; we should thus regiment Locke's (more haphazard) usage along lines suggested by Paul Guyer, using "real constitution" for the configuration of intrinsic and irreducible

²⁹ Ayers 1981: 229 (see also 222) notes that "for Locke 'extended solid substance' gives a sort of nominal essence of matter rather than its real essence". See also Atherton 1984: 418.

³⁰ See Guyer 1994: 133-4 and Owen 1991: 105-118. Though that real essence might be a disjunctive one; see below.

qualities responsible for all of a thing's qualities/powers,³¹ while reserving "real essence" for constitutions relative to nominal essences, i.e. for whatever constitution is responsible for a set of observable properties enshrined by us as a kind.³²

The superaddition Locke writes of here, then, is with respect to the nominal essence. He asks: Why should it be controversial to affirm that God can bestow a quality upon something that goes beyond the qualities that we take to be definitive of that kind of thing? Why suppose that "God can give no power to any parts of matter, but *what men can account for* from the essence of matter in general?" (W IV: 461, my emphasis). That superaddition is with respect to the nominal essence is further supported by Locke's treatment of the thinking matter issue in his first letter to Stillingfleet, where he tells us that the question comes down to this: whether there exists any substance that has both the (observable) quality of solidity and the power of thought (W IV: 33).³³ Leibniz, like some later commentators, supposes that Locke has been misled by his obscure idea of substance in general into thinking that powers can be arbitrarily glued onto a bare and uncharacterizable substratum (Leibniz 1981: 63-64; Leibniz 1923-: VI.vi.63-64). But there is no such confusion. Nothing Locke says here goes

³¹ I disagree, however, with Guyer's claim that Locke "suggests that the concept of a thing's real constitution is nonrelational, that constitution in no way depending upon our own mental activity" (133). Though Locke would hold, I think, that the constitution of the entire world as a whole is nonrelational and depends in no way on mental activity, he is aware that individuation, the carving of one thing out from its neighborhood, must be done by us. We might, e.g. do so by implicitly referring to 'that brown, rectangular thing which tends to move around together,' thus demarcating an individual with a real constitution, a configuration of intrinsic and irreducible qualities grounding all of its other qualities.

³² Owen (1991: 108) distinguishes similarly between real essence of an unsorted particular and real essence of a sorted particular. He rightly notes that the former is not properly an *essence* for Locke, since no distinction between essential and accidental properties is possible without reference to a kind.

³³ See also a letter to Collins, W X: 285, as well as E IV.iii.6, where the question of thinking matter is described as the question of whether God can give perception and thought "to a Substance, which has the Modification of Solidity."

against the (more or less Leibnizian) view that when thought is superadded to a particular substance, that thought, like the rest of its behavior, follows from its particular real constitution. These powers look extrinsic from our perspective; they don't follow from the nominal essence. But that is not to say that they are extrinsic with respect to the natures/real constitutions of bodies. But if Locke does not reject this sort of essentialism here, how exactly might superaddition be understood, so as to be compatible with it?

The first point we need to keep in mind is that given Locke's proof of God's immateriality, thought cannot follow from the real constitution of a substance unless that constitution is more than merely mechanical, that is, unless it is not characterizable simply in terms of extension and solidity (and their modifications). So, if Locke accepts essentialism, the real constitutions of thinking things must be nonmechanical. The second is that Locke assumes that it is obvious from experience that not all material stuff (that is, stuff which satisfies the nominal essence of matter by manifesting the observable qualities of extension and solidity) thinks. This leaves us with the following two options for superaddition. Either God's superadding thought to matter involves

(1) Disjunctive real constitutions: God gives some stuff a nonmechanical real constitution which allows it to manifest thought as well as extension and solidity, while he gives nonthinking material stuff a different type of real constitution, which might well be purely mechanical.

or

(2) Uniform non-mechanical³⁴ real constitutions, differently configured: The real constitutions of all material things (things that satisfy the nominal essence of matter) are nonmechanical; God configures some of them so as to allow them to think.

³⁴ In both (1) and (2) "nonmechanical" just means "not merely or strictly mechanical," that is, not exhausted by size, shape, solidity, and motion/rest.

First, let us examine these two options a little further by considering their intelligibility and fit with the texts. These characterizations may seem disagreeably abstract, but this poses no serious problem. One thing we need to make sense of them is an abstract notion of the real constitution which produces a thing's observable qualities; Locke supplies us with that at III.iii.15. Another is the analogy with mechanism, which, as argued in section 1 above, is presented by Locke as a uniquely intelligible *example* of what the real constitutions of bodies might be like. Relying on that analogy, we can make sense of the idea of "configuring" the real constitutions of some things, analogously to arranging and moving mechanical parts, so as to make them think.³⁵ Note that "configuration" need not be taken too literally. All that proposal (2) requires is that some particular co-instantiations of primary qualities will work to produce thought and others will not; God sets some up so as to allow for thought. Of course, we can't understand how that would work, given that we have no idea of these non-mechanical constitutions, but that's just as we would expect. The disjunctiveness of the first option may seem peculiar, but remember that Locke's views about classification clearly allow that the real essences of types might be highly disjunctive; it might, e.g., be that two very different sorts of constitutions

³⁵ An interesting challenge might be raised to essentialist superaddition à la (2), however: Locke argues in E IV.x that configuring purely mechanical qualities (putting extended solid bodies into particular spatial arrangements and setting them in motion) can't produce thought. Why would he think that some analog of configuration might work, given different primary qualities/ real constitutions? (This is related to a question posed to me by Jonathan Schaffer.) Once we realize that "configuration" need not be taken literally, as including just repositioning and setting into motion, I think the objection loses most of its force. To whatever objection remains, I think the appropriate reply is just: Why suppose that it can be ruled out? What argument would establish that?

produce that set of observable qualities (yellow, malleable, etc.) that are necessary and sufficient for something to count as gold. Likewise for matter.³⁶

7. Support for essentialist superaddition

So, if Locke is a consistent essentialist, he ought to understand superaddition along the lines indicated above. Is there any more direct textual evidence favoring (1) or (2) over the “extrinsic powers” reading? In fact there is. Many of the very passages that most seem to suggest an extrinsic powers reading turn out, on closer inspection, to better support an essentialist reading. Note that W IV 468, which has divine omnipotency bestowing the faculty of thinking on certain parcels of matter also states that these parcels must first be “made capable of receiving” them. On the Leibnizian reading, it is unclear why the powers could not simply be bestowed at will.³⁷ The passage from W IV 464, also quoted above, is followed by this illuminating little internal dialog:

If it be asked, why they limit the omnipotency of God, in reference to the one rather than the other of these substances; all that can be said to it is, that they cannot conceive how the solid substance should ever be able to move itself. And as little, say I, are they able to conceive how a created unsolid substance should move itself; but there may be something in an immaterial substance, that you do not know. I grant it; and in a material one too: for example, gravitation of matter towards matter, and in the several proportions observable, inevitably shows, that there is something in matter that we do not understand, unless we can conceive self-

³⁶ For Locke’s acknowledgement of the possible, even probable disjunctiveness of real essences, see E III.x.20: 501-2. Interestingly, Ayers interpretation of Locke’s “pure mechanism” rules out (1) by specifying that all matter must have one uniform nature (Ayers 1981: 210, Ayers 1991: 153). Although I think Locke is inclined to assume that matter is catholic (as Boyle put it, 1991: 18; Boyle 1999-2000: V: 305), I cannot see any basis for building this into the very foundations of Locke’s system, especially given Ayers own point that “solid, extended substance” gives the nominal essence of matter.

³⁷ McCann and Stuart could perhaps accommodate such passages by, say, suggesting that God may need to configure bodies so that they fall under the relevant divinely established general laws. The point remains that these passages offer no positive support for an extrinsic powers reading over an essentialist one.

motion in matter; or an inexplicable and inconceivable attraction in matter, at immense and almost incomprehensible distances: it must therefore be confessed, that there is something in solid, as well as unsolid substances, that we do not understand. (W IV: 464)

The hypothesis of thinking matter leads us not to the view that an omnipotent God could bestow thought even on mere solid, extended stuff, but rather to the view that there may be something in material substances, that is in things that manifest solidity and extension, that we do not know. This strongly suggests that there must be something internal to the thinking thing that would, in principle, explain its ability to think.

The connection Locke makes here to attraction is one that we should follow. Recall that thinking matter is just an hypothesis, something that Locke claims is for all we know possible, and thus not to be ruled out. He takes it, however, that Newton has shown that universal gravitation is actual and that it cannot be accounted for mechanically, in terms of the impacts of bodies possessing size, shape, solidity, and motion/rest. If Locke is an essentialist, this implies that mechanism is a false or incomplete account of the natures of bodies.³⁸ But this is exactly what Locke acknowledges in stating that Newton has shown that there *is* something in solid substances that we do not understand.

Most tellingly, if Locke were content to allow that laws of nature are arbitrary divine additions to the natures of things, he should have no problem at all with gravity; it would pose no challenge to his understanding of how the world works.³⁹ One thing that is clear is that this is not Locke's response to

³⁸ Here Locke self-consciously takes a step beyond his position in the *Essay*, which, as argued in section 1, is that corpuscularianism is the most intelligible theory available, but it has severe explanatory gaps and may be false.

³⁹ Compare Berkeley's position: Berkeley holds that all laws of nature are mere regularities in our ideas, established by God. As a result, he finds gravitational "attraction" no more problematic than impact.

Newton. He is deeply troubled by Newton's results, as he famously reports to Stillingfleet:

It is true, I say [in the *Essay*], "that bodies operate by impulse, and nothing else." And so I thought when I writ it, and can yet conceive no other way of their operation. But I am since convinced by the judicious Mr. Newton's incomparable book, that it is too bold a presumption to limit God's power, in this point, by my narrow conceptions. The gravitation of matter towards matter, by ways inconceivable to me, is not only a demonstration that God can, if he pleases, put into bodies powers and ways of operation above what can be derived from our idea of body, or can be explained by what we know of matter, but also an unquestionable and every where visible instance, that he has done so. And therefore in the next edition of my book I shall take care to have that passage rectified. (W IV: 467-8)

Note that Locke does not say that the powers God put into bodies cannot be derived from *any* idea of body, or that they cannot be explained *full stop*, but that they cannot be derived from *our* idea of body and cannot be explained by what *we* know of matter. Further, to add those powers to bodies is to do something *to bodies*, not simply to establish a law that bodies fall under. The result is something whose nature we do not, at least fully, comprehend. Locke writes in his *Elements of Natural Philosophy* that the force of attraction "is inexplicable by us, though made evident to us by experience, and so to be taken as a principle in natural philosophy" (W III: 305). But if the extrinsic powers interpretation were correct, there would be no explanatory problem: God bestows a power, establishes a law, and there is nothing further that needs explanation, nothing that eludes us.⁴⁰

⁴⁰ In *Some Thoughts Concerning Education*, there is a discussion of gravity that might seem to lend strong support to an extrinsic powers or occasionalist reading of superaddition:

... it is evident, that by mere Matter and Motion, none of the great Phænomena of Nature can be resolved, to instance but in that common one of Gravity, which I think impossible to be explained by any natural Operation of Matter, or any other Law of Motion, but the positive Will of a Superiour Being, so ordering it. (TE: 246)

8. Consequences for thinking matter and divine immateriality

We have seen that there is good reason to read Locke's talk of the (possible) superaddition of thought to matter, as well as the actual superaddition of gravity to matter as compatible with essentialism and, thus, along the lines of (1) or (2). We must, however, consider the consequences of this reading, some of which may seem less than attractive. First, the sort of materialism that Locke contemplates under the rubric of thinking matter is not what we might have thought at first glance. The hypothesis that cannot be ruled out is not that *matter*—understood as something whose *nature* is exhausted by extension and solidity—might think, but that something *material*—something which *exhibits* extension and solidity—might think. Thus Hobbes' materialism is not a live option for Locke. Of course, this is no more than we should expect at this point since, as I argued in section 2 above, if we take Locke's God proof seriously, we must see it as implying that strictly mechanist matter cannot think. Thus, the hypothesis of thinking matter is the hypothesis that something whose nature is not fully captured by our idea of matter, but which falls under our idea of matter

Stuart (1998: 355-6) lays considerable stress on the passage in arguing for his extrinsic powers view. Note how the passage continues, however:

And therefore since the Deluge cannot be well explained without admitting something out of the ordinary course of Nature, I propose it to be considered whether God's altering the Center of gravity in the Earth for a time (a thing as intelligible as gravity it self, which, perhaps a little variation of Causes unknown to us would produce) will not more easily account for *Noah's Flood*, than any *Hypothesis* yet made use of to solve it. (TE: 246)

The first part of the passage is admittedly somewhat awkward for my interpretation; I read it as stating that we cannot explain gravity via our idea of matter, and must therefore have recourse in some fashion to God. This does not entail, however, that what God did was to attach extrinsic powers to purely mechanical matter; it may be that what he did was create material stuff whose nature transcends our ideas. The second half of the passage reinforces my interpretation and undercuts Stuart's (or an occasionalist interpretation), since it implies that gravity has some underlying cause, which might be altered in some fashion so as to shift the earth's center of gravity.

by exhibiting solidity and extension, might think.⁴¹ For short: not that *mere* matter might think but that something *material* might think.

We then must return to the question of what exactly the proof of God's immateriality establishes and what it leaves open. What it establishes is that God could not be mere matter: God's nature could not be exhausted by extension and solidity. But of course this is also true of me: I could not be mere matter.

Indeed, I have argued that Locke saw Newton as having established that *matter* is not mere matter, that its nature is not captured by our idea of matter, that is, by mechanism. So showing that God could not be mere matter may not seem like much of an achievement. And my analysis invites the question: If I could be *material*, could God be material? That is, could God manifest the properties of extension and solidity? The answer here must be yes, but that much should be untroubling. After all, the extrinsic powers interpretation too must allow that God could bestow upon himself the relevant powers to manifest solidity and extension and thus count as material by falling under our idea of matter. It's also true that for all the proof tells us, God and finite thinkers might share the same type of real constitution, that is, our constitutions might be characterizable in terms of the same primary qualities. But, of course, dualism too allows for this.

What might seem genuinely troubling is the possibility, allowed by option (2), that I, God, and a rock might share the same type of real constitution, the same sorts of primary qualities. Now, (1) and (2) were explicitly formulated by me, not Locke, and one might respond to this concern by suggesting that Locke favors or should favor (1) over (2). It seems to me, on the other hand, that both

⁴¹ Recall that this fits quite precisely with the way Locke describes the question of thinking matter at W IV: 33 and W X: 285: the question is whether one substance can have the affections of solidity, extension, and thought.

possibilities are available to him, but that his descriptions of superaddition and the lack of any direct acknowledgement of the possibility that matter itself might be highly disjunctive in its nature suggest (2) somewhat more than (1).⁴² My response is to observe that Locke's central concern in chapter X of the *Essay* is to eliminate Hobbes' God, and his purportedly demonstrative proof, on my interpretation, is simply aimed at that. In leaving open (2)'s version of thinking matter: that God might configure some material stuff so that it can also manifest thought, the proof thereby leaves open that possibility that God might *be* that sort of configured material stuff. Note, however, that as observed in section 2 above, Ayers has plausibly identified in Locke a further argument that would apply against this sort of material God—a God whose essence is not mechanist, but whose essence differs only in complexity and configuration from a rock's. That argument is that if thought is a matter of configuration, it is merely a contingent property of its bearer, and thus its presence requires explanation and cannot be attributed to a *first* cause.

9. Conclusion: Locke's metaphysical commitments

We are now in a position to appreciate the convergence between Locke's philosophy of body and his philosophy of mind. In considering Locke's view of body, I argued that Locke is not committed to the corpuscularian theory he so often helps himself to; what he is committed to is a much more abstract metaphysics of real constitution and primary quality. His ontology of mind

⁴² His descriptions of the superaddition of thought to matter do often suggest that God is organizing or adjusting a system, which, lacking such specific organization, would be unable to think (as in E IV.iii.6: 541). That Locke has not specifically contemplated (1) is also suggested by W IV: 469, where Locke concludes from the fact that not all matter thinks that thought is not essential to any matter. If (1) is an option, and we are interested in real rather than nominal essences, this inference looks problematic.

reveals these same commitments, together with the same official agnosticism about what the real constitutions of bodies and minds are actually like. It is this agnosticism that allows him to entertain the possibility of a sort of thinking matter, a substance that is extended, solid, and thinking, compatible with essentialism, despite the fact that he maintains that something whose real constitution is exhausted by extension, solidity, and their modifications cannot think.

I have suggested elsewhere that Locke's metaphysical commitments are fairly modest, that they amount to a refinement of the view that appearance and reality may diverge and that appearance is causally dependent on reality (Downing 1998: 395). This position might fairly be described as the metaphysical backdrop to mechanism. Of course, one might well find the view and/or the "refinement" controversial. We ought to ask, therefore, about the basis for Locke's commitments, especially about his attachment to the essentialist view that all of a thing's qualities follow from its own real constitution, together with the real constitutions of other substances and the spatial relations among those substances. This seems the most controversial aspect of Locke's ontology, and it may well sound like the sort of metaphysical commitment that a proponent of epistemic modesty ought to eschew, though we would not be disconcerted to find it held by a rationalist such as Leibniz.

In fact, there are (at least) two questions here that Locke should answer, as a student of the human understanding: First, how do we come up with such a view and, second, why should we take it to be true? The answer to the first question must be that this is the view that we naturally derive from reflection on

our experience, including the sort of reflection conducted in the *Essay*.⁴³ And I think this is exactly Locke's position, though his account of it is, of course, less than satisfying if one holds him to his expressed strictly empiricist standards. As for the second, I think Locke's only answer is: this is what it would be for the world to be intelligible in principle. Locke has already given up on the world's being fully intelligible *to us*, as we are presently constituted, with the faculties that we have. As we saw in section 1, Locke holds that we cannot achieve a scientia of body, that our best attempt, via our natural physics, the mechanical hypothesis, falls short. Here he disagrees with Leibniz, who insists that the world must be intelligible *to us* and clings, on that basis, to mechanism. That the world is *in principle* intelligible, intelligible to other spirits and perhaps to us, given other ideas, is a view that Locke shows no signs of abandoning. He ought to regard it as a defeasible assumption-- his epistemic modesty demands this much-- but he does not regard it as defeated.⁴⁴

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⁴³ Locke's notions of real constitution and primary quality, must, like any other, must be derived from reflection on experience. In E II.viii, one thing that Locke shows us is how reflection on sensory experience allows us to distinguish between appearance and reality and arrive at the very notion of a primary quality—a quality that bodies have intrinsically, that grounds other powers.

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