

Infinite Accumulations and Pantheistic Implications: Leibniz and the *Anima Mundi**

Laurence Carlin, Rice University

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Throughout his early writings, Leibniz was concerned with developing an acceptable account of God's relationship to the created world. In some of these early writings, he endorsed the idea that this relationship was similar to the human soul's relationship to the body. Though he eventually came to reject this idea, the *anima mundi* thesis remained the topic of several essays and correspondences during his career, culminating in the correspondence with Clarke. At first glance, Leibniz's discussions of this thesis may seem less important in comparison to others, since it might seem like a topic which is far removed from what are regarded as his most important philosophical doctrines. I hope to show in what follows that such a view is mistaken. The large amount of attention Leibniz paid to this thesis is a sure indication of its importance to him. Further, as we shall see, his discussions of this thesis turn on some of his most interesting metaphysical topics, including the development of his thinking about the actual infinite, the structure of organic wholes, and the relationship between God and the created universe. In what follows, I examine these discussions chronologically, from the *De Summa Rerum* (1675-6), to the correspondence with Clarke (1715-6).

1. *The 'Anima Mundi' of the 'De Summa Rerum'*

It is abundantly clear from the experimental character of Leibniz's writings from the early 1670's that he had not yet settled on the well-known doctrines of, say, the *Discourse on Metaphysics*. To take one example, Daniel Fouke has recently noted that "Leibniz's early views about the relation of God to the world lacked his later commitment to internal active principles."¹ Indeed, many of the texts from the late 1660s to the mid 1670s make it clear that Leibniz had not yet settled on his mature explanation of corporeal action—on the view, that is, that bodily action is to be explained by appeal to mind-like entities contained in bodies.² But in an essay of 11 February 1676, *On the Secrets of the Sublime*, Leibniz had at least begun to experiment with the idea that matter was united by a mind of some sort. He hypothesizes in that essay that "all solids are informed by some kind of mind" (A

VI, iii, 473 (DSR 23)).³ He went on to argue that “matter is ... a discrete, not a continuous entity,” and that therefore “it is only contiguous, and is united by motion or by a kind of mind” (A VI, iii, 474 (DSR 25)). It is relevant to our purposes that the very next sentences of that essay read as follows:

It seems that there is ... some most perfect mind, or God. This mind, like a soul, exists as a whole in the whole body of the world; the existence of things is also due to this mind. (A VI, iii, 474 (DSR 25))

This is a striking passage in that Leibniz is entertaining what was surely regarded as a heretical idea in the seventeenth century. But given the context that this passage occurs in, we can see what may have led him to do so.

The essay in which this passage occurs is one of the earliest in which Leibniz began to hypothesize that all bodies are informed by a mind. It is clear from the passage above that at this time Leibniz regarded the world itself as a body. Indeed, a few sentences later, Leibniz wrote that “the infinite whole is one,” which suggests that the world itself may be regarded as a single body, whose soul is God. Given that Leibniz was hypothesizing that all matter (solids) is (are) informed by a mind of some kind, and that the world itself may be seen as a “whole body,” it is perhaps not surprising that he considers the idea that the world is informed by some kind of mind. If the world is an infinitely large body, then the obvious candidate for the role of a world-soul is God.⁴

The idea expressed in the above quoted text is not an aberrant one. In that same month (February, 1676), Leibniz wrote the following as a response to the French mathematician Claude Perrault’s view that “the soul is in the body equally, and that sensation occurs in the sensorium itself, in the eyes, in the feet, etc.”:

For my part, I would have thought there to be a certain liquid, or, if you prefer, an ethereal substance, diffused throughout the whole body and continuous. Through it, the soul perceives; it inflates, contracts and dilates the nerves. It is far from credible that every part whatever of this substance is animated . . . It is not intelligible that one thing should have more than one action and passion. But if the soul exists at the same time in several things, that is, operates in several places, it will simultaneously have several different operations. . . . Further, every kind of gyration seems to be performed in the cavities of the brain, as the soul observes its own vortex. . . . But that the soul itself puts a vortex in motion [*agitare vorticem*]*—that is indeed wonderful. But it does so, for we do not act as a simple machine, but out of reflection, or action on ourselves. Perhaps the whole vortex of the great globe is vivified by a soul of the same kind, which is the reason why the laws of the system are observed, and all things*

are compensated. The whole world is one vortex for God. [*Totus Mundus unus Deo vortex*]⁵ (A VI, iii, 480 (DSR 35, 37))

Leibniz's reasoning here, as in many of his early writings, is difficult to follow. Nevertheless, the context once again invites some speculation. Leibniz seems quite insistent that Perrault's view, the view that the soul is in the whole body equally (or that it "exists at the same time in several things"), is mistaken on the grounds that it implies that the soul will, at the same time, be performing "different operations," or that one and the same soul will be active and passive in more than one respect at the same time. He then notes that the soul operates by "observing its own vortex." Presumably, this view of the soul, according to Leibniz, overcomes the lately noted objection to Perrault's view. That is, it overcomes the objection that the soul could be performing mutually inconsistent activities at the same time. From here, he considers that perhaps the world itself is "vivified by a soul of the same kind," viz., a soul which acts reflectively by putting a vortex in motion.⁶ If so, this would be why the "laws of the system are observed and all things are compensated." Clearly, the suggestion of the last sentence is that it is God who is this soul.

The fact that Leibniz thought his own view in this essay—that the soul operates by putting a vortex in motion—overcomes the objection to Perrault's view is revealing. He seems to think that the fact that all things are "compensated" can be explained by appeal to a world-soul. Now whatever "compensation" means here, it is difficult to believe that Leibniz would call Perrault's view of the soul one which could explain compensation. That is, if the world-soul was like what Leibniz saw as Perrault's view of the soul, then the world-soul would be performing inconsistent operations at one and the same time. If this is true, it is difficult to believe that it would explain how, according to Leibniz, "all things are compensated." Rather, the suggestion of the passage is that Leibniz's view of the soul, and hence of the world-soul, is one that explains the mutual compensation and regular activity (in the sense of all "the laws of the system [being] observed") of naturally occurring processes.

This is admittedly speculative, but the passage clearly suggests that God is to the world what the soul is to the body, and that this explains important features of the world. It is interesting to note in this regard that during the time period in question, Leibniz attributed to the Stoics the view that "all the world remains in agreement" (A II, i, 500; cf. G IV, 523 (L 496)), and also the view that "God is the substance of the world" (A VI, i, 510). In fact, in the latter passage, which was written circa 1668, Leibniz drew on this Stoic view in support of some of his own doctrines, which suggests that at that time, he looked favorably upon it, or, at least, some aspects of it. Perhaps, then, what is meant by "all things are compensated" is intimately linked

to the Stoic doctrine of the mutual agreement of all things.⁷

It barely needs emphasizing that even at this early stage in his career Leibniz was aware of the obvious: a view according to which God is the soul of the world was heretical, for it seems to imply that God is endowed with a body (viz., the world), and such a view would not be well-received due to the fact that God was considered pure act, and the existence of a body indicated passivity. It was roughly this time period that Leibniz was working on the *Catholic Demonstrations* (1668-71), a project whose entire purpose was to promote harmony and concordance among all Christian sects. In light of this, we may ask why he would entertain such a view.

We have already noted that Leibniz seemed to be attracted to the soul of the world thesis for reasons having to do with his natural philosophy. That is, he seemed to find it congenial to the view that contiguous matter is informed by a mind, and it seemed to provide him with an explanation of the apparent mutual compensation of all created things. But there were other influences at work here too. Recent scholarship has shown that there are strong Platonic strands of thought in Leibniz's early writings.⁸ While I cannot here go into the details of these strands in the early Leibniz, I wish to draw attention to one aspect of this Platonism which is relevant to our purposes. In various writings throughout the early 1670's, Leibniz claimed that "God is the one among everything" (A VI, ii, 283), where this is understood as the claim that God is that which unifies everything in virtue of his essence being diffused throughout the world. Often, Leibniz puts the point by saying that "there is something divine in [all of our] mind[s], which Aristotle used to call the active intellect" (A VI, iii, 391 (DSR 43); cf. A VI, iii, 520 (DSR 79)).⁹ With respect to both human and non-human bodies, he writes in *On Transubstantiation* (1668) that the "substance of the human body is union with the human mind, and the substance of bodies which lack reason is union with the universal mind, or God" (A VI, i, 509 (L 116)). Here, as in other texts, Leibniz identifies God with the "mind of the universe" (A VI, i, 499). The idea seems to be that creation consists of God's emanating various manifestations of his essence into created things. It is in virtue of this emanation process that Leibniz seems comfortable calling God the universal mind, since his essence is universally present.

These considerations alone do not get us to the soul of the world thesis. But it is clear that they are congenial to it. Indeed, Leibniz himself invites this interpretation when he writes in *On Transubstantiation* that his views are similar to "Plato in the *Timaeus* on the soul of the world, to Aristotle in the *Metaphysics* and *Physics* on the agent intellect diffused through everything," and "to the Stoics erecting [*statuentes*] God as the substance of the world" (A VI, i, 510). A view according to which the

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divine essence is contained in everything such that God may be called the one among everything, or the unifier of all things, sits quite well with the thesis that God is the soul of the world.¹⁰ The point is *not* that the Platonistic strands in the young Leibniz forced him into the soul of the world thesis. Rather, the point is this: the Platonistic strands alongside Leibniz's acceptance of the thesis that all matter is informed by a mind of some kind, his acceptance that the infinite world may be regarded a single body, his apparent search for an acceptable explanation of the source of inanimate corporeal activity, and his search for an explanation of the mutual compensation of all created things, shed light on why he at one time entertained the idea that God is the soul of the world.

However, he did not entertain that idea for long. Consider the following passage from April 1676, written just months after the passages quoted above where Leibniz entertained the soul of the world thesis:

There is no soul of the world, because a continuum cannot be composed of minds, as it can be composed of spaces. You will say that such a soul does exist in a certain way, in so far as minds sense themselves. I say in reply that a soul cannot be an entity by aggregation, but that universal space is an entity by aggregation. So it is not surprising that there is no soul of the universe. (A VI, iii, 521 (DSR 81))

We may note some interesting features of this passage. First, space is here labeled an entity by aggregation. The later Leibniz viewed space as a purely ideal entity (e.g. G II, 379), rather than an entity by aggregation, which, for him, would be a phenomenal entity (cf. G II, 252 (L 531)). Second, despite its being an aggregate, it is said to be capable of constituting a continuum, which might also sound unlike the later Leibniz. But more relevant to our purposes, the soul of the world is here ruled out on the grounds that the collection of all minds is not itself a mind. That is, Leibniz seems willing in this passage to talk about the aggregate of all spaces forming a continuous universal space; the same may not be said for the aggregate of all minds, for a soul cannot be an entity by aggregation, and so cannot form a single universal mind. Hence, the collection of all minds is not the soul of the world.

We might wonder, of course, whether the soul of the world argued against in this text is the one previously entertained. In previous passages, the soul of the world is explicitly identified with God, but God is not even mentioned in this passage. Rather, it is the collection of all minds which is here denied the status of an *anima mundi*. It might be that Leibniz thought the above argument held ground, as well, against the thesis that God is the soul of the world. After all, the conclusion claims that "there is no [*nullam*] soul of the universe," which seems to rule out God as well.

Perhaps he even entertained, during this experimental period, the idea that God may be viewed as something like the collection of all minds, but I have been unable to locate any texts which clearly suggest this.¹¹ At any rate, the argument above, as far as I know, does not occur elsewhere in Leibniz's writings. Perhaps we ought to look elsewhere to understand his mature and settled resistance to the soul of the world thesis.

So how *does* Leibniz go on to argue that God cannot properly be regarded as the soul of the world? One would expect that Leibniz would argue against it primarily on theological grounds, focusing on the standard orthodox conception of God as a wholly active being, who, therefore, cannot intelligibly be said to have a body because that would make him passive, and imperfect. Surprisingly, this is positively *not* Leibniz's favored line of attack. Rather, as we shall see in the next section, Leibniz sought to spoil the *anima mundi* thesis on metaphysico-mathematical grounds. The results of his attack cast light on his thinking about the actual infinite, and the status of organic wholes.

2. *Arithmetical Unity and the Actual Infinite*

From the late 1670's onward, Leibniz resisted the idea that God's relation to created things was like that of a soul to its body. He launched several kinds of argument against this idea, but there is one argument which occurs more than the rest. Indeed, Leibniz was fond enough of this one argument to include it in his only published book, *Theodicy* (1710):

[T]here is an infinite number of creatures in the smallest particle of matter, because of the actual division of the continuum to infinity. And infinity, that is to say, the accumulation of an infinite number of substances, is, properly speaking, not a whole [*un tout*] any more than the infinite number itself, whereof one cannot say whether it is even or uneven. That is just what serves to confute those who make of the world a God, or who think of God as the Soul of the world; for the world or the universe cannot be regarded as an animal or as a substance. (T §195)¹²

Surely there are premises missing. At first glance, at least, it is not abundantly clear why, if the world is an accumulation of infinitely many substances, that alone rules out an *anima mundi*, but it is clear that is what Leibniz thought. He believed that the existence of an actual infinity told against the soul of the world thesis. Why?

Help with *Theodicy* §195 might be found in the following short essay from the late 1670's,¹³ where Leibniz set out to "demonstrate" that there is no soul of the world:

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It can be demonstrated that God is not the soul of the world; for either the world is finite or it is infinite. If the world is finite, certainly God, who is infinite, cannot be called the soul of the world. But if the world is considered infinite, it is not one being or [*seu* =that is] one body *per se* (just as elsewhere it was demonstrated that the infinite with respect to number and size is neither one nor a whole, but the infinite with respect to perfection is one and a whole). Therefore, no soul of this kind can be understood. The infinite world, of course, is no more one and a whole than an infinite number, which Galileo demonstrated to be neither one nor a whole. (Grua 558)¹⁴

The consequence of the first disjunct is clear enough: if the world is finite, and God is the soul of the world, then the finite world is God's body. A being endowed with a finite body is capable of being acted upon (cf. G VII, 332f. (AG 281f.)). But God is pure act, and so not capable of being acted upon (NE 114; cf. G VII, 530). Hence, a finite world is not the body of God. However, that argument is rather uninteresting for our purposes since Leibniz *did* believe that the world was infinite. So it is the argument which begins with the second disjunct which concerns us here.

The argument which begins with the second disjunct, I take it, is the same one from *Theodicy* §195. It begins with the assumption that the world is infinite. It follows from this, Leibniz seems to think, that the world is not one body, nor one whole. If it is not one body or one whole, then it cannot have a soul. Hence, there is no soul of the world. But why, we may ask, should we admit that infinite aggregates, like the world, cannot admit of a soul? After all, organic bodies, according to Leibniz, just are an accumulation of infinitely many substances, yet he clearly thought they had souls (better: dominant monads).

It should be noted that in the above passage Leibniz writes that if the world is infinite, it is not "one being or one body *per se*," which might lead one to suspect that what Leibniz has in mind is the claim that the world does not have substantial unity, and hence, cannot be said to be endowed with a soul. I take it that Bertrand Russell had something like this in mind when he wrote the following:

Leibniz's position is this: that the notion of a *whole* can only be applied to what is substantially indivisible. . . . One whole must be one substance, and to what is not one whole, number cannot properly be applied. The world is only verbally a whole ... and even a finite aggregate of monads is not a whole *per se*. The unity is mental or semi-mental. In most passages, Leibniz only applies this doctrine against infinite aggregates, but it is evident that it must apply equally against all aggregates.¹⁵

Russell is not the only commentator who sees Leibniz's argument against the soul

of the world as reflecting his belief that the world lacks substantial unity. More recently, and commenting on the very argument we are considering, Antonio Lamarra wrote that

[b]ecause of the metaphysical equivalence of *ens* and *unum*, if the physical and metaphysical universe possessed real unity, it would be an entity, a living organism composed of simple substances and God could be thought of as its soul. In view of the expressive relation between physical phenomenon and metaphysical reality postulated in Leibniz's philosophy, he would seem to be on the path to Pantheism and to Spinoza.¹⁶

But we might question whether the concept of metaphysical unity, or the idea of the world's lack of substantial unity (i.e. lack of being *one per se*), is critical to the argument. If it is critical to the argument, then Leibniz would seem to be arguing as follows: only bodies which are one *per se* can intelligibly be said to be endowed with a soul. The world is infinite, and so is not one *per se*. Hence, the world cannot have a soul. Hence, God is not the soul of the world.

There is something to be said for this interpretation, the Russell-Lamarra interpretation. It is true that Leibniz often used the locution "one *per se*" [*unum per se*], as he does in the Grua passage, to indicate that he was talking about substantial, or metaphysical, unity. But despite Leibniz's use of the "one *per se*" locution here, it seems to me that the concept of substantial unity is irrelevant to the present argument against the soul of the world thesis. I offer three considerations in support of this claim.

First, the Russell-Lamarra interpretation of the argument, as we have seen, requires the premise that only bodies which are one *per se* can have a soul, since on this interpretation, Leibniz's use of the notion of a "whole" just is the notion of one *per se*. But this premise is flatly inconsistent with his attribution of souls, or dominant monads, to *any* bodies. Leibniz repeatedly claims that no organic body is, in itself, a unity (cf. G II, 135 (LA 170); G III, 657; G VII, 468n). Clearly, he could not, then, resist the soul of the world thesis on the grounds that the world is not a unity, and consistently maintain, at the same time, that organic bodies are endowed with souls (cf. C 16 (MP 177); G VI, 617f. (AG 221); G II, 252 (AG 177)).¹⁷ The fact that the Russell-Lamarra interpretation generates a gross inconsistency in Leibniz suggests that he probably had a different argument in mind.

Second, it must be emphasized that the passage from Grua seems to be the only place where Leibniz used the "one *per se*" locution when presenting this argument. In the other texts where the argument occurs, it is the idea that the world is not a "whole" [*totus* or *le tout*] that Leibniz presents.¹⁸ In light of this, it would be very

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odd that Leibniz spent as much time as he did arguing for the view that the world, an infinite accumulation, is not a *whole*, if he merely meant that it is not a genuine unity. According to Leibniz, *every* aggregate lacks real unity simply in virtue of its lacking the property of indivisibility, and the other properties of a simple substance. That is, every aggregate, regardless of the fact that it is infinite, lacks genuine unity. His criterion for something to count as an *unum per se* does not hinge crucially on whether the relevant thing is infinite or not. But in the passages where Leibniz sets out the relevant argument, the fact that the world is infinite seems to play a crucial role. Thus, it is difficult to believe that in the numerous passages where Leibniz claims that the world is not a whole *because it is infinite*, he simply means it lacks substantial unity.

Finally, there are many passages where Leibniz seems to contrast the notion of a whole [*totus* or *un tout*] with the notion of a unity. He writes to De Volder in 1704 that “substances are not wholes [*non tota sunt*] which contain their parts formally, but total things which contain their parts eminently” (G II, 263 (L 534)), suggesting that substances—true unities—are something altogether different from mere wholes. Two years later in a letter to Des Bosses, Leibniz claimed that “only the impartible infinite is one [*unum*], but is not a whole [*totum*]; that infinite is God” (G II, 314), which clearly suggests a difference between a unity and a whole. Finally, in the *New Essays* (1704), in a context in which Leibniz explicitly claims “that the universe cannot be considered a whole,” he writes that although “there is never an infinite whole in the world, . . . there are always wholes greater than others *ad infinitum*” (NE 151). Obviously, the wholes referred to here cannot be substances, or true unities. In what sense could one substance be “greater than” another?¹⁹

So what *was* Leibniz getting at in resisting the soul of the world thesis on the grounds of the actual infinite? A promising route to take in answering this question is to consider Leibniz’s views on the infinite in general. Consider the following from a letter to Des Bosses of 1 September 1706:

There is a *syncategorematic* infinite, or a passive power having parts, namely, the possibility of further progression in dividing, multiplying, subtracting, and adding. There is also a *hypercategorematic* infinite, or a potestative infinite, an active power having parts, as it were, eminently, not formally or actually. This infinite is God himself. But there is no *categorematic* infinite, or one actually having infinite parts formally. (G II, 314f.; cf. NE 157)²⁰

Leibniz is here employing Scholastic terminology to refer to different conceptions of the infinite.²¹ The syncategorematic infinite, or the potential infinite, exists for Leibniz only in the realm of possibility. As such, it is a feature of the ideal realm.

The hypercategoric infinite, the wholly active infinite, is Leibniz's conception of the absolute being. God, as a being without limits, is identified with this infinite. But note Leibniz's denial of a categoric infinite. What this means for him is that there is no actually existing infinite, *if* that is understood as a genuine whole consisting of infinitely many parts. By Leibniz's lights, a categoric infinite "is a notion which implies a contradiction" (NE 158; cf. G I, 338; G VI, 629; GM III, 535). It is important to realize, of course, that Leibniz's denial of the categoric infinite is not a denial of the actual infinite. As he tells Foucher, he is "so much in favor of the actual infinite, that instead of admitting that nature abhors it, as do the vulgar, [he] holds that nature everywhere affects it, in order to better mark the perfections of its author" (G I, 416). Rather, Leibniz's denial of a categoric infinite amounts to this: the fact that there is an infinity of things does *not* mean that they collectively constitute a genuine whole, that is, something endowed with precise, or limited, quantity:²²

It is perfectly correct to say that there is an infinity of things, i.e. that there are always more of them than one can specify. But it is easy to demonstrate that there is no infinite number, nor any infinite line, nor other infinite quantity, if these are taken to be genuine wholes. The Scholastics were taking that view, or should have been doing so, when they allowed a 'syncategoric' infinite, as they called it, but not a 'categoric' one. The true infinite, strictly speaking, is only in the *absolute*, which precedes all composition and is not formed by the addition of parts. (NE 157; cf. G VII, 468)

Provided we bear in mind that "the infinity of things" does not entail there being an infinite quantity, it is perfectly correct to say, Leibniz tells us, that there is an actual infinite. It is on the grounds of the non-numerability of the actual infinite that Leibniz denies infinite quantity, or *an* infinite number.²³

These considerations prove important for our purposes. As noted above, Leibniz often claimed that being and one are convertible, or *metaphysically* equivalent. But it must be stressed in this context that Leibniz was also prepared to talk of the "oneness" and being of aggregates, *given a certain qualification*. He writes to Des Bosses that "Being and one are convertible, but a being through aggregation is therefore one [*unum*], although this being and unity is semimental" (G II, 304; cf. NE 46). So Leibniz permitted talk of the oneness of bodies, provided we keep in mind that this oneness is "semimental." Indeed, a few sentences later, Leibniz drew the relevant distinction. He told Des Bosses that the body of an animal "is not one being *per se* [*unum per se Ens*], but an aggregate, and [therefore] it has Arithmetical unity, not Metaphysical unity" (G II, 304). Given that whatever has metaphysical

unity is something Leibniz would call “one,” then it seems clear that metaphysical unity implies arithmetical unity (or, arithmetical “oneness”). But more importantly, the reverse does *not* hold: arithmetical unity does *not* entail metaphysical unity, for, as Leibniz says, the body of an animal has arithmetical unity, but lacks metaphysical unity. With these distinctions in mind, consider what Leibniz went on to discuss next in that letter—an argument which we have seen before, though in much less detail. He began by stressing that “the actual infinite in magnitude cannot be shown in the same manner as in multitude.” He continued thus:

The arguments against an actual infinity suppose that if this is admitted, there will be an infinite number, and that every infinity will be equal. But one must know that in fact an infinite aggregate is not one whole, or endowed with size, nor does it consist of number. Accurately speaking, one should say, instead of an infinite number, that there are more things than can be expressed by any one number; or instead of an infinite straight line, that it extends straight beyond any magnitude that can be assigned, in such a way that the straight line always continues further and further [*ita ut semper major et major recta adsit*]. It is the essence of a number, a line, and of whatever is a whole, to be limited. Hence, although the world is infinite in size, it is not one whole [*unum totum*], nor, with certain ancients, can God be fashioned as the soul of the world, not only because he is the cause of the world, but also because such a world would not be a single body, nor can it be regarded as an animal, and so would not have any but a merely verbal unity. It is, therefore, only a manner of speaking, when we speak of one thing, where there are more than can be understood in a single assigned whole, and we present like a magnitude that which does not have the properties of a magnitude. Just as it is unable to be said of an infinite number whether it is even or uneven, so neither of an infinite line whether it is commensurable to a given line. (G II, 304f.)

Leibniz begins by pointing to a difference between the actual infinite with respect to multitude, or number, and the actual infinite with respect to its magnitude, or size. He goes on to emphasize that “although the world is infinite in size, it is not one whole,” and for this reason God cannot intelligibly be seen as the soul of the world. It was Leibniz’s view, as we have seen, that there is no such thing as an infinite quantity, and therefore infinite entities are not wholes. That is, the actual infinite does not even possess what Leibniz would call arithmetical unity (let alone metaphysical unity). The world, according to Leibniz, is infinite in every conceivable aspect: size and number.²⁴ As such, it cannot intelligibly be labeled a “whole,” because, as Leibniz says, “it is the essence. . . of whatever is a whole to be limited.”

But since the world is unlimited with respect to size and quantity, it cannot be properly called *one* whole, or *one* thing. All we need do now to complete the argument is to supply the implicit premise, viz., only entities which are wholes can be endowed with souls (alternatively: only things which have *arithmetical* unity can be endowed with souls). It follows that there is no soul of the world. This is not altogether implausible given his views on the infinite and the notion of a whole, for when we attribute a soul to the world, we are not attributing it, arithmetically speaking, to any *one* thing.²⁵

In closing this section, we should note two passages which support this interpretation of Leibniz's argument. We already took a brief look at a part of each of them, but it will be useful to consider them in their entirety. Consider the following from the *New Essays*:

M. Descartes and his followers, in making the world out to be indefinite so that we cannot conceive of any end to it, have said that matter has no limits. They have some reason for replacing the term 'infinite' by 'indefinite', for there is never an infinite whole in the world, though there are always wholes greater than others *ad infinitum*. As I have shown elsewhere, the universe itself cannot be considered to be a whole. (NE 151; cf. G V, 17)

Leibniz's point is that there are infinitely many wholes in the world, but that the universe itself is not a whole. The "wholes" spoken of here are presumably organic bodies considered as possessing arithmetical unity, *qua* phenomenal. But infinitely many of these wholes do not add up to one whole for Leibniz.

Finally, let us focus our attention on the following brief passage from a letter to Des Bosses (1706):

Meanwhile, I believe, properly speaking, that the infinite consisting of parts can be neither one nor a whole, not unless it is conceived through a mental fiction as a quantity. Only the impartible infinite is one, but is not a whole; that infinite is God. (G II, 314)²⁶

Given our interpretation of Leibniz's argument against the soul of the world, this is just what we should expect. Since it is the "essence" of whatever is a whole to be limited (G II, 304), God is not a whole, for he is absolutely unlimited. Indeed, it seems Leibniz thought that only things which had parts could properly be called a whole (cf. C 476; FC 322 (AG 105)). This conception would exclude simple substances, as well as God. It would also explain why he told De Volder that substances "are not wholes" (G II, 263 (L 534)), for they lack parts.

3. *The 'Anima Mundi' of the Clarke Correspondence*

We should observe, following Lamarra (quoted above), that there are obvious ways in which the soul of the world thesis may be seen as headed down Spinoza's road, that is, as having pantheistic implications. While it is not clear that one could *identify* the view that God is the soul of the world with pantheism, both views seem to assign to God the role of being the very nature of the created universe; both were unpalatable for Leibniz. There has been much discussion of the ways in which Leibniz sought to avoid the pantheism of Spinoza, and the occasionalism of Malebranche, which, according to Leibniz, implied the pantheism of Spinoza.²⁷ Much less recognition has been given to the fact that Leibniz saw Newtonian philosophy as having similar implications. However, there are important differences in the way that Leibniz saw the respective defects of these philosophical systems. At stake with respect to Spinoza and occasionalism was the existence of enduring forces in created substances, without which, Leibniz thought, pantheism is inevitable. But with respect to Newtonian philosophy, what was at stake was the correct account of God's ubiquity and God's providence over the created universe, without which, Leibniz claimed, one easily falls into the view that God is the soul of the world, a view which Leibniz saw the Newtonians falling into. But, at bottom, what Leibniz saw as wrong with all of these systems was their violation of the autonomy of nature, and their deprivation of divine wisdom. In this section, we briefly examine, via the correspondence with Clarke, Leibniz's take on the correct account of divine relations to the created universe, in light of the soul of the world thesis.

In a well-known passage from his first letter to Clarke (1715), Leibniz charged the Newtonians with unorthodoxy:

Sir Isaac Newton, and his followers, have also a very odd opinion concerning the work of God. According to their doctrine, God needs to wind up his watch from time to time; otherwise it would cease to move. He had not, it seems, sufficient foresight to make it a perpetual motion. Nay, the machine of God's making is as imperfect, according to these gentlemen, that he is obliged to clean it now and then by an extraordinary concourse, and even to mend it, as a clockmaker mends his work, who must consequently be so much the more unskillful a workman, as he is oftener obliged to mend his work and to set it right. (LC I, §4)

Leibniz took issue with Newtonian doctrine on the grounds that it implies that "God needs to wind up his watch from time to time." He is here referring to Query 31 of

Newton's *Opticks*, where Newton suggested that the irregularities which arise in the planetary orbits, due to the planets' mutual influence, "will be apt to increase till this system wants a reformation." It was Newton's view, then, that it was necessary for God to intervene in the Solar System from time to time in order to set it on its path again. Clearly, Leibniz found this intolerable, for it implies that God did not have "sufficient foresight to make it a perpetual motion." It implies, according to Leibniz, that the universe is imperfect, and consequently, its author the more unskillful a workman for needing to mend it from time to time.

But more directly, it implies that nature is in some sense non-autonomous, in that God *alone* plays an active role in regularly occurring processes. Leibniz argued against views which had this implication throughout his mature career.²⁸ Passages such as the following one aimed at Malebranche and Spinoza are typical:

From this it again follows that the doctrine of occasional causes defended by several persons can lead to dangerous consequences . . . though these consequences are, doubtless, unintended by its most learned defenders. For this view is so far from increasing the glory of God by removing the idol of nature that, quite the contrary, it seems with Spinoza to make of God the very nature of things, while created things disappear into mere modifications of the one divine substance, since that which does not act, which lacks active force, which is robbed of discriminability, robbed finally of all reason and basis for existing, can in no way be a substance. (G IV, 515 (AG 165f.); cf. G IV, 520 (L 494); G VI, 541 (L 587))

It is clear, then, that Leibniz sought to separate God's activity from activity stemming from "the nature of things." But, of course, the Newtonians were equally guilty of running the two together in Leibniz's eyes:

If God is obliged to mend the course of nature from time to time, it must be done either supernaturally or naturally. If it be done supernaturally, we must have recourse to miracles in order to explain natural things, which is reducing a hypothesis *ad absurdum*, for everything may easily be accounted for by miracles. But if it be done naturally, then God will not be *intelligentia supramundana*; he will be comprehended under the nature of things, that is, he will be the soul of the world. (LC II, §12)

It was Leibniz's opinion that to introduce miracles to explain regular events was a shelter for "ignorance and laziness" (NE 66). Thus, the first disjunct was no option in his eyes. But if God's emendations are understood as a regularly occurring natural process, then he will be understood "under the nature of things." That is, he will be understood as being "what the soul, *in the vulgar notion*, is with respect to the body" (LC IV, §33; my emphasis). The "vulgar notion" referred to here is

presumably one according to which the soul has a real causal influence over the body (contra the pre-established harmony). Leibniz's point is that if God is understood as regularly and *naturally* influencing the course of nature, he would seem to be what the vulgar soul is to the body. And this, according to Leibniz, directly violates the autonomy of nature.

But why exactly was it so important to leave God out of the world's natural processes? One answer is that it underestimates divine wisdom, and, according to Leibniz, the Newtonians were guilty of such underestimation. The need for post-creation intervention implies for Leibniz that God does not possess enough wisdom, understanding, or forethought to create the universe such that it could run on its own (cf. LC II, §9). Leibniz warned Clarke of this consequence, and of whose company he would be in if he endorsed such a view:

[T]he reason why God exceeds any other artist, is not only because he makes the whole, whereas all other artists must have matter to work upon. This excellency in God would be only on the account of power. But God's excellency arises also from another cause, viz. wisdom, whereby his machine lasts longer, and moves more regularly, than those of any other artists whatsoever. . . . Thus, the skill of God must not be inferior to that of a workman; nay, it must go infinitely beyond it. The bare production of every thing would indeed show the *power* of God, but it would not sufficiently show his *wisdom*. They who maintain the contrary will fall exactly into the error of the materialists, and of Spinoza, from whom they profess to differ. They would, in such case, acknowledge power, but not sufficient wisdom, in the principle or cause of all things. (LC II, §§6-7)

Of course, Spinoza underestimated divine wisdom, according to Leibniz, for reasons stemming from his necessitarianism, reasons which I cannot go into here. The point for our purposes is that Leibniz saw the pantheism of Spinoza and the soul of the world thesis attributed to the Newtonians as directly conflicting with the autonomy of nature, which in turn, for Leibniz, implied that God was less than omniscient.

But Clarke in turn put a challenge to Leibniz: for if God never intervenes, how is that he exercises providence over his creation? It was important, of course, in the context of seventeenth century philosophical theology, to recognize, and account for, divine providence. Clarke thought he had a way to account for such providence, and that Leibniz did not. Clarke wrote:

The notion of the world's being a great machine, going on without the interposition of God, as a clock continues to go without the assistance of a clockmaker, is the notion of materialism, and fate, and tends . . . to exclude

providence and God's government in reality out of the world. (LC, p. 14) So while Leibniz accused the Newtonians of pantheistic tendencies, Clarke accused Leibniz of denying divine providence. It is clear from the correspondence that both Leibniz and Clarke became sensitive to the tension which exists between holding, on the one hand, that God is completely external to the world, and holding, on the other, that God exercises divine providence through his omnipresence *in* the world. The challenge on the table, then, was to explain how God can be present to everything, and thus exercise divine providence, while nonetheless avoiding the implication that God bears a relationship to the world similar to the relationship of the vulgar soul to the body.

In his second letter to Leibniz, in the context of a discussion of how animate substances (souls) perceive external things, Clarke claimed that a necessary condition for such perception was the immediate presence of the soul to the perceived things. Indeed, he made it clear that this condition was necessary for God as well: "a living substance can only there perceive where it is present ... to the things themselves (as the omnipresent God is to the whole universe)" (LC, p. 21). Leibniz, while not yet in disagreement with Clarke on this issue, nevertheless wished to clarify Clarke's claim. He wrote that "God is not present to things by situation, but by essence: his presence is manifested by his immediate operation" (LC III, §12). Presumably, presence to another thing by situation is the intuitive notion, whereby we might say that Leibniz was present by situation to Hanover during his life. Presence by essence is surely less intuitive, as we shall see. The point for now is that Clarke disagreed with Leibniz's clarification, claiming that "God, being omnipresent, is really present to everything, essentially and substantially," and that "His presence manifests itself indeed by its operation, but it could not operate if it was not there" (LC, p. 33-34). So Clarke, unlike Leibniz, held that God's omnipresence consists in, among other things, a real presence by situation, the same sort of presence whereby we think of coexisting things being present to one another.

Leibniz's response to this view of Clarke's ended with a familiar accusation:

To say that God perceives what passes in the world, because he is present to the things, and not by [the dependence on him of the continuation of their existence, which may be said to involve] a continual production of them, is saying something unintelligible. . . . Besides, this is exactly falling into that opinion which makes God to be the soul of the world, seeing it supposes God to perceive things, not by their dependence upon him, that is, by a continual production of what is good and perfect in them, but by a kind of perception, such as that by which men fancy our soul perceives what passes in the body. (LC V, §§85-86)

Leibniz's point is this: Clarke claimed that the only explanation of divine providence was to view God's presence *in* the world as a presence by situation, as well as a presence by essence. But, by Leibniz's lights, this is unsatisfactory, for it implies that God "sees" what passes in the world by being situated in the world in a passive state of co-presence. It implies, that is, that God could be acted upon by existing things, for if God is *situated in* the world, then, like all other things *in* the world, he too could be acted upon. Further, the vulgar notion of the soul, as we have seen, is one according to which the soul has a real causal influence on the body, and is capable of being acted upon by the body. But this is precisely, according to Leibniz, the way that the Newtonians view the relationship—a relationship of mutual influence—between God and created things, since it is their view that God is present to the world by situation. Hence, Leibniz argued, on the Newtonian conception of things, God is to the world, what, in the vulgar notion, the soul is to the body. Hence, the Newtonian God is the soul of the world.

Of course, Leibniz's own view was that God's providence, via his omnipresence, is not to be explained by reference to God's alleged situation in the world. Rather, God's presence manifests itself by his continually producing all that is positive in created things, for what is positive in created things are nothing other than versions of God's own properties, though creatures have these in a limited way.²⁹ It is clear from the correspondence that this continual production is what is intended by God's situation by essence; his essence is that which is positive in created things. Leibniz is alluding to his own theory of divine conservation, according to which God incessantly produces perfections in creatures. Getting to the heart of this theory is no easy matter. It will not be pursued here.³⁰

What is important for our purposes is that Leibniz thought he had the metaphysical machinery to account for divine providence, an account which simultaneously avoided the implication that God is the soul of the world. According to this account, God is in one sense *in* the world: what there is of perfection in created things proceeds from the divine essence.³¹ But at the same time, God is external to the world because he is not *situated in* the world. He is what Leibniz would call an *Intelligentia supramundana* (T §217; cf. LC II, §10). God exercises his providence through a continual production of what is good in created things, and it is this operation on created things which manifests his presence. Leibniz thought his account had the benefit of pointing to a real difference between God's relationship to the world, and the vulgar conception of the soul's relationship to the body, whereas the Newtonian view did not.

4. *Conclusion*

Perhaps what is most interesting about Leibniz's discussions of the soul of the world thesis is how they turn on so many aspects of his thought. We have seen that the early Leibniz hypothesized that God is the soul of the world in a search for an acceptable explanation of corporeal activity and the mutual "compensation" present in the created world. His subsequent rejection of this idea turned, not on standard orthodox grounds, but on his views about the actual infinite and the limited structure of organic bodies, or about what kind of things can intelligibly be said to be endowed with souls. In the correspondence with Clarke, theological pressures demanded that he find logical space between the view that God is not situated in the world, yet not wholly external to it either. This would yield, in his mind, an acceptable account of divine omnipresence through which divine providence may be exercised. What is ironic with respect to this last account is the Platonistic strands clearly present in it: a continual diffusion of God's essence into created substances. It was these same Platonistic strands, as we saw in the first section, which were present during the young Leibniz's adoption of the soul of the world thesis. We may assume that he eventually saw those Platonistic strands as providing the much needed logical space between holding, on the one hand, that God is, in one sense, in the world, and holding on the other, that God is, in another sense, external to the world. Indeed, the development of his thought on the concept of a soul of the world, manifested in the large amount of attention he paid to that thesis, is yet further testimony to the architectonic structure of his thought.³²

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Laurence Carlin
Philosophy Department
Rice University
Houston, Texas 77005 USA
e-mail: lcarlin@ruf.rice.edu

NOTES

¹ “Emanation and the Perfection of Being: Divine Causation and the Autonomy of Nature in Leibniz,” *Archiv für Geschichte der Philosophie* 76 (1994), p. 171.

² See, for example, *De Transsubstantione* (1668; A VI, i, 508f. (L 115f.)), and the letter to Thomasius of 26 September 1668 (A II, i, 11 (see note 4)). See also Fouke (1994 (op. cit.)) for references and discussion, and his “Leibniz’s Opposition to Cartesian Bodies During the Paris Period (1672-1676),” *Studia Leibnitiana* 23 (1991), pp. 195-206.

³ In addition to the abbreviations adopted by the present volume, I employ the following:

C = *Opuscules et Fragments Inédits de Leibniz*. Edited by Louis Couturat (Paris: Félix Alcan, 1903).

DSR = *De Summa Rerum: Metaphysical Papers, 1675-1676*. Translated by G. H. R. Parkinson (New Haven: Yale University Press, 1992).

GM = *G.W. Leibniz: Mathematische Schriften*. 7 vols. Edited by C. I. Gerhardt (Berlin: A. Asher, and Halle: H. W. Schmidt, 1849-1863). Cited by volume and page.

LC = *The Leibniz-Clarke Correspondence*. Edited by H. G. Alexander (Manchester: Manchester University Press, 1956). Cited by letter and section number as in G VII, unless cited by page with a ‘p.’.

MP = *Philosophical Writings*. Translated and edited by Mary Morris and G. H. R. Parkinson (London: Dent, 1973).

All references are cited by page number unless otherwise noted above. The sources of English translations are given for quoted material when the translation is not my own. However, when I thought it necessary, I have made minor changes in these translations without notice.

⁴ There are many passages from the early period which indicate that Leibniz was struggling to account for the cause of motion in inanimate bodies. For example, in a letter to Thomasius of 26 September 1668, Leibniz wrote that “body is nothing other than matter and figure, and surely neither matter nor figure can be understood as the cause of motion: it is necessary [then] that the cause of motion be outside of body. And as nothing outside of body is thinkable, except a thinking being, or [*seu*] mind, mind will be the cause of motion. However, the governing mind of the universe is God” (A II, i, 11). Passages such as these seem quite congenial to the view that God is the soul of the world, for in such a case, God will be the “animator” of the inanimate world of bodies, and could be cited as the source of motion for

inanimate bodies. Granted, this is highly speculative, but Leibniz *was* searching for an acceptable explanation of the source of motion for the inanimate world, and many works of this period give God a primary role in this explanation. (Cf. A VI, i, 169f.). It would not be surprising then that the soul of the world thesis was placed on the table by Leibniz as a possible explanation for such phenomena.

⁵ As Parkinson notes, *Deo* can be taken in the ablative or dative case. If it is taken in the ablative, then the sentence translates “The whole world is one vortex *in* God.” Parkinson translates it the way I have in the text. In support of this translation, and against translating it in the ablative, he remarks that “such a pantheistic view does not seem typical of Leibniz” (DSR 131, n.5). But it should be noted that it is far from clear that pantheistic comments were not typical of Leibniz in the 1670’s. On this topic, see Mark Kulstad’s “Did Leibniz Incline Toward Monistic Pantheism in 1676?,” in *Leibniz und Europa. VI Internationaler Leibniz-Kongress* (G.-W.-Leibniz Gesellschaft, 1994), pp. 424-428; Robert Adams, *Leibniz: Determinist, Theist, Idealist* (Oxford: Oxford University Press, 1994), pp. 123ff; G. H. R. Parkinson, “Leibniz’s Paris Writings in Relation to Spinoza,” *Studia Leibnitiana Supplementa* 18 (1978), pp. 79-112. Our point here, though, is that regardless of whether *Deo* is taken in the dative or the ablative, the suggestion of the passage still seems to be that God is to the world what the soul is to the body.

⁶ That Leibniz thought the world contained a “general infinite vortex” is also clear from A V, iii, 474 (DSR 25). See also DSR 128, n.4, for a brief discussion of vortices in Leibniz’s physics.

⁷ My thanks to Eileen O’Neill for bringing to my attention the possibility of Stoic influence here, though limitations of space prohibit me from exploring it further. It should also be noted that in *Two Sects of Naturalists (1677-1680?)*, the “new sect of Stoics” are those who believe that God is the soul of the world (G VII, 333f. (AG 281f.)). See also the letter to Hansch of 25 July 1707, where Spinoza, Aristotle, Averroes, the Stoics, and Valentine Weigel are all labeled “thinkers [who] have asserted that God is a spirit diffused throughout the whole universe” (L 594). Cf. Grua 38, 546.

⁸ This is not to deny that there are Platonistic strands in Leibniz’s later writings as well. But recent work in this area has shown that the development of his metaphysics was heavily influenced by Platonism, as evidenced in his early writings. See Fouke (1991; 1994 (op. cit.)). See especially Christia Mercer and R. C. Sleight, Jr. “Metaphysics: the Early Period to the *Discourse of Metaphysics*,” in *The Cambridge Companion to Leibniz*, N. Jolley, ed. (Cambridge: Cambridge University Press, 1995), pp. 67-123.

⁹ It is noteworthy in this context that the later Leibniz often associated Aristotle's doctrine of the active intellect with the soul of the world thesis. See, for example, A II, i, 544; G IV, 453 (AG 60); G VI, 529 (L 554); G VII, 151; Grua 561.

¹⁰ In fact, even in later writings, when criticizing the thesis that God is the soul of the world, Leibniz is quick to say that many aspects of that thesis are good ones, viz., the Platonistic ones. For example, in a letter to Ludwig von Seckendorf of 29 December 1684, after explaining the soul of the world thesis as it is found in the Aristotelianism of Averroes, Leibniz wrote: "But aside from this being a negligent and very bad opinion, the view is most beautiful in itself and even has reasons conforming to Scripture. For God is that light which brightens all men growing in this world. And the truth which speaks to us within, as when we understand theorems with eternal certainty, is itself the voice of God, which Augustine also observed" (A II, i, 544). The point presumably is that although God is not the soul of the world, he does nonetheless, in some sense, animate features of it. (Cf. G IV, 453 (AG 60); G VI, 530 (L 555))

¹¹ This idea is not as radical as it may sound. As we saw above, in an essay written just a month earlier than the one we are considering, Leibniz wrote that "there is something divine in the mind, which Aristotle used to call the active intellect, and this is the same as the omniscience of God" (A VI, iii, 391 (DSR 43); cf. A VI, iii, 520 (DSR 79)). According to the latter text, the active intellect may be identified with the omniscience of God, and it is said to be that which is divine *in* our minds. Though not conclusive, it might suggest an identification of the collection of all minds and the omniscience of God. This would be a very ambiguous identification, since presumably, only a *part* of our minds have the said divine characteristic, viz. the active part. Further, this would not be an identification of the collection of all minds with *God*, but rather with the omniscience of God. The point, however, is that Leibniz seems to be experimenting, at this time, with the idea that the collection of all minds bears some relation to divine attributes. And in at least one other text, Leibniz locates a host of divine attributes *in* characteristics of the world (cf. A VI, iii, 391f. (DSR 43)). On this latter passage, see Adams (1994 (op. cit.)), pp. 123f.

¹² Virtually the same argument occurs at Grua 558; G II, 304f., and GM III, 535. Variations or hints of it which play on the actual infinite occur at G II, 314; G V, 17; G VII, 468; NE 151.

¹³ Grua dates this essay between February and April 1676. If this is the correct dating, then Leibniz's attitude toward the idea that God is the soul of the world underwent a dramatic shift in a very short period of time. The passages we saw in the last section where Leibniz entertained the idea are themselves dated February

1676 (A VI, iii, 474 (DSR 25); A VI, iii, 480 (DSR 35, 37)). The argument we are about to see from the Grua passage is one that Leibniz repeated throughout his life.

¹⁴ The remainder of this passage is interesting: “There are even other arguments, such as that God is the continuous producer of the world, the soul, however, is not the producer of its own body.” Here Leibniz appeals to God’s conservation of the world in pointing to a difference between God’s relation to the world, and the soul’s relation to the body. Note that the argumentative strategy is different: he is seeking to show that the analogy does not hold water, rather than arguing directly against the intelligibility of the *anima mundi*. Similar strategies are used, as we will see, in the correspondence with Clarke.

¹⁵ *A Critical Exposition of the Philosophy of Leibniz*, 2nd. ed. (London: Routledge, 1937), pp. 115-116 (Russell’s emphasis). Cf. Nicholas Rescher, *Leibniz: An Introduction to his Philosophy*, (London: Oxford, 1979), p. 102, who endorses Russell’s interpretation here.

¹⁶ “Leibniz on Locke on Infinity,” in *L’infinito in Leibniz: problemi e terminologia*, A. Lamarra, ed. (Hanover: G.-W.-Leibniz-Gesellschaft, 1986), p. 190.

¹⁷ Note that this is true even if one thinks that Leibniz, during what Daniel Garber calls his “middle years,” recognized the existence of genuine corporeal substances, one *per se*. For even on this interpretation, it is the entire corporeal substance—body and soul—which is said to be one *per se*. That is, the body, *in itself*, is an aggregate and, as such, lacks genuine unity. See Garber’s “Leibniz and the Foundations of Physics: The Middle Years,” in *The Natural Philosophy of Leibniz*, K. Okruhlik and J.R. Brown, eds. (Dordrecht: Reidel, 1985), pp. 27-130.

¹⁸ See the references in note 12. In every one of those texts, except Grua 558, the expression *unum per se* does not appear. In every one of those texts the expression *totus*, or *le tout*, is what is used in the argument.

¹⁹ It should also be noted that in a table of definitions dating from 1702-1704, Leibniz defined a whole [*Totum*] as that “of which the many things constituting it come together properly.” He later added in the margin, “strictly speaking it will be a whole on the condition that it is of homogenous parts” (C 476). Such definitions strictly imply that wholes have parts. But substantial unities always lack parts; so no whole can be a substantial unity. (Cf. FC 322 (AG 105)). However, we shall see later (note 26) that there is reason to believe that Leibniz did not develop a strict notion of a whole until after 1700 or so.

²⁰ Leibniz wrote this as a footnote to the letter.

²¹ See Lamarra (1986 (op. cit.)) for a more detailed discussion of Leibniz’s conceptions of the infinite than I attempt here.

²² Cf. G II, 304: “It is the essence of a number, a line, and of whatever is a whole [*Totius*] to be limited.”

²³ Cf. G II, 315: “There is even an actual infinite through the mode of a distributive whole, but not of a collective whole. Therefore, something can be enunciated about all numbers, but not collectively. So it can be said that to every even number corresponds its odd number, and vice-versa; but it cannot on that account be accurately said that the multiplicities of odd and even numbers are equal.”

²⁴ Cf. Leibniz’s fourth letter to Clarke, where there is said to be no limit to the quantity of matter in the world (LC IV, §§21-23).

²⁵ Cf. the letter to Johann Bernoulli (1698): “It seems to me one must say either of two things: either the infinity of things is not one whole, or the infinity of things, if it is a whole, is nevertheless not greater than its parts, which is something absurd. Indeed, I have demonstrated for many years that the number or multitude of all numbers implies a contradiction, if it is assumed to be a single whole. The same is true of a greatest number and of a least number, or [*seu* =that is] the least of all fractions. And this must also be said of the most rapid motion, and similar things. Also, the universe is not a single whole, nor must it be conceived as an animal whose soul is God, as, for example, the ancients did” (GM III, 535).

²⁶ Note that this is flatly inconsistent with Leibniz’s calling “the infinite with respect to perfection ... one and a whole” at Grua 558, which is dated 1676. (I am assuming “the infinite with respect to perfection” is God.) There is reason to think that Leibniz did not develop a strict notion of a whole until 1700 or so. In a letter to Arnauld of 9 October 1687, Leibniz wrote that “parts can constitute a whole, *whether it has a genuine unity or not*” (G II, 120 (LA 153); my emphasis). Here Leibniz allows that something endowed with true unity can be a whole. But Leibniz’s standard definition of a whole is something which has homogenous parts (cf. C 476; see note 19). But in what sense does a genuine unity have parts, since it is, *ex hypothesi*, indivisible into parts? We might speculate that once Leibniz settled on his technical notion of a whole, he realized that God could not be labeled a whole since he is without parts. For more on Leibniz’s inconsistency in this regard, see the discussion in Adams (1994 (op. cit.)), pp. 346-347.

²⁷ See, for example, G IV, 508-509 (AG 159-160). For recent discussions of these topics, see Donald Rutherford’s “Natures, Laws, and Miracles: The Roots of Leibniz’s Critique of Occasionalism,” in *Causation in Early Modern Philosophy*, Steven Nadler, ed. (University Park: Penn State University Press, 1993), pp. 135-158; Robert Sleight, “Leibniz on Malebranche on Causality,” in *Central Themes in Early Modern Philosophy*, J.A. Cover and Mark Kulstad, eds. (Indianapolis:

Hackett, 1990), pp. 161-194; Roger Woolhouse, "Leibniz and Occasionalism," in *Metaphysics and Philosophy of Science in the Seventeenth and Eighteenth Centuries*, R. Woolhouse, ed. (Dordrecht: D. Reidel, 1988).

²⁸ We need to proceed carefully here. In one sense, Leibniz himself insisted, *via* divine concurrence in creaturely action, and divine conservation of the world, that God plays a participating role in regularly occurring processes. While I cannot here go into the details of Leibniz's theories of divine concurrence and conservation, it should be noted that what troubled Leibniz about occasionalism, Newtonianism, and systems like it, was their insistence that God *alone* performs at least some of the world's natural activities. That is, it was Leibniz's view that *all* natural activities are to be explained as the result of the internal forces in created substances. For example, in his Reply to Bayle (1698), Leibniz claimed that "all that happens must be explained through the nature which God gives to things" (G IV, 520 (L 494)). But occasionalism, by postulating God as the only causally efficient agent in the world, and Newtonianism, by claiming that God needs to intervene in the universe, violate this maxim because they explain natural events as the result of God's activity alone. This conflicts with Leibniz's insistence on the autonomy of nature. Whether or not Leibniz's insistence on the autonomy of nature was consistent with divine concurrence is a notoriously thorny topic. See Sleight (1990 (op. cit.)); Adams (1994 (op. cit.)), pp. 94f. See also Sleight's book *Leibniz and Arnauld: A Commentary on their Correspondence* (New Haven: Yale University Press, 1990), pp. 183-185. For the remainder of this paper, when I refer to God's intervention as a threat to the autonomy of nature, I have in mind the claim that God *alone* performs natural activities, a claim which Leibniz rejected.

²⁹ See the following places where Leibniz speaks of creation as the process of God's instantiating limited versions of his own properties: G VI, 602f. (MP 200); G VII, 310 (MP 77); Grua 126; 364f.

³⁰ But see the references in note 28 above.

³¹ Cf. *Monadology* §47: "[A]ll created or derivative monads are products, and are generated, so to speak, by continual fulgurations of the divinity from moment to moment, limited by the receptivity of the creature, to which it is essential to be limited" (G VI, 614 (AG 219); cf. T §§385, 388).

³² I wish to thank Mark Kulstad, Mark Thomas, and Gregory Brown for helpful discussions of the issues in this paper. Special thanks are also due to Mark Kulstad for very helpful comments on earlier drafts.