Leibniz's Rejection of Infinite Numbers: Unity, Quantity, and Divinity

By

Vukoman Milenkovic

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Supervisor: Professor Michael Vance Griffin

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AUTHOR'S DECLARATION

I, the undersigned, Vukoman Milenkovic, candidate for the MA degree in Philosophy declare herewith that the present thesis titled "Leibniz's Rejection of Infinite Numbers: Unity, Quantity, and Divinity" is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography. I declare that no unidentified and illegitimate use was made of the work of others, and no part of the thesis infringes on any person's or institution's copyright. I also declare that no part of the thesis has been submitted in this form to any other institution of higher education for an academic degree.

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INTRODUCTION

Why did Leibniz reject the existence of infinite numbers? In the context of contemporary set theory, where the Cantorian view provides a robust framework for understanding infinite cardinalities, Leibniz's denial may appear outdated or philosophically naïve. Yet a closer examination of his philosophical system reveals something more ambitious: a comprehensive metaphysical, mathematical, and theological framework in which the concept of an infinite number is repeatedly rejected on principled grounds. This thesis argues that Leibniz's rejection of infinite numbers is neither incidental nor due to conceptual limitations, but rather motivated by each of the three foundational commitments of his philosophy: his mereological nihilism in the metaphysics of parts and wholes, his conceptualist theory of quantity in his philosophy of mathematics, and a specific understanding of God as the "true infinite" in his theology.

A useful place to begin is Leibniz's response to Galileo's paradox, which appears in *Discourses on the Two New Sciences* (1638). Galileo observes that while there are strictly fewer square numbers (1, 4, 9, ...) than natural numbers, there is also a one-to-one correspondence between the two sets: every natural number n can be paired with its square n^2. This leads to a contradiction: the squares are both fewer than the natural numbers (because they are only some of them) and just as many (because they can be paired without remainder). The contradiction arises from the tension between two intuitive measuring principles, which yield incompatible results when applied to infinite collections. On the one hand, Euclid's Fifth Axiom states that the whole is greater than any of its proper parts. On the other hand, the Bijection Principle says that two sets are equal in size if their elements can be placed in a one-to-one correspondence. Galileo takes this paradox to show that, in the case of infinite sets, notions like "greater than" or "equal to" break down and should not be applied (DNS 40). The contemporary Cantorian orthodoxy resolves the paradox by claiming that only the Bijection Principle applies to infinite collections, while Euclid's Axiom must be set aside in this context. However, in his early Parisian notes from the winter of 1672/73, written while reading Galileo, Leibniz takes a different approach:

> Hence it follows [from the paradox] either that in the infinite the whole is greater than the part, which is the opinion of Galileo and Gregory of St. Vincent, and which I cannot accept; or that infinity is itself nothing; or that infinity is itself nothing, that is, that it is no one and not a whole. (A VI 3, 168; trans. in (Arthur 1999, 107))

He insists on preserving Euclid's Fifth Axiom and resolves the paradox by denying that infinite collections can form wholes at all. For Leibniz, an infinite collection is never a genuine unity; it is merely a fiction. And since numbers, by definition, are wholes formed from unities[1], it follows that infinite numbers are impossible.

However, this rejection of infinite numbers is not just a quick solution to a paradox. As we shall see, it is entangled with three broader domains of Leibniz's thought. First, his mereology rules out the possibility of aggregates being unities; infinite collections, being mere multitudes, cannot be unified into numbers. Second, his philosophy of quantity conceives of numbers not as objects but as modes or relations within unified wholes. Without a genuine whole, no genuine quantity—and thus no number—can exist; this applies with particular force to infinite numbers. Finally, Leibniz's theology insists that only God is

[1] In the 'Fardella memo' of 1690 he writes: "There are no substances where there is no substance, just as there are no numbers where there are no unities; but just as all numbers are derived from one plus one, so must all multiplicity be derived from unity" ((A 6 4 B, 1669), trans. in (Coudert 1995, 83)).

infinite in the proper sense. This "hypercategorematic infinite" is unique to God and stands in stark contrast to the creaturely notion of an infinite aggregate.

In what follows, I develop each of these three dimensions—unity, quantity, and divinity—in order to show that Leibniz's rejection of infinite numbers is not a limitation to be overcome, but an insight grounded in the internal coherence of his thought[2].

The approach taken here is primarily philosophical. I analyse key concepts in Leibniz's writings—such as unity, aggregation, quantity, and divinity—and examine how they are connected. At the same time, I make use of contemporary secondary literature to clarify historical context and guide interpretation. With a few exceptions—where I emphasize that certain views remained unchanged from Leibniz's early writings through to his final years—the majority of texts cited in this thesis come from his middle period (the 1680s and 1690s) and his early late period (the first years of the 1700s). As such, this study primarily concerns Leibniz's mature thought. This is not to deny that the seeds of the ideas discussed here can be found in his earlier writings; rather, I have chosen to focus on later texts because the relevant views are stated there more directly and explicitly.

The thesis proceeds in three main chapters. Chapter 1 addresses Leibniz's metaphysics of parts and wholes, focusing on his commitment to mereological nihilism—the view that no true beings are composed of parts. I argue that, for Leibniz, being requires unity, and that aggregates, whether finite or infinite, lack the kind of intrinsic unity that would make them

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[2] A similar kind of project was taken up by Gregory Brown in (Brown 1998, 121) where he argues, contrary to what I am trying to show here, that Leibniz should have endorsed the concept of an infinite number as it coheres well with other philosophical commitments he has, namely, with his theory of body and corporeal substance (which states that infinitely divided bodies, when added a dominant monad, can be a *whole*), his theory of universal expression (which states that every substance perceives or expresses *the whole world*, albeit in a confused way), and his theory of universal harmony (which states that every substance of the world stands in some kind of quasi-causal contact with every other substance of the world making it 'glued' into a *plenum*).

real. I examine two motivations for this position; the failure of proposed principles of composition, and the inability of aggregates to persist through time. I also discuss the distinction between parts and presupposed constituents, and the claim that aggregates have no ontological surplus beyond their elements. These points clarify why infinite multitudes, being mere multitudes, cannot be real wholes—and therefore cannot be numbers.

Chapter 2 turns to Leibniz's account of quantity. I reconstruct his conceptualist view that quantities are not properties of pluralities but mental comparisons within unified wholes. Drawing on Anat Schechtman's analysis, I contrast this with the Aristotelian–Lockean tradition, in which quantity is inherently additive and divisible. I show that while Leibniz accepts this additive conception for finite cases, he rejects it for the infinite, treating infinite quantities as syncategorematic devicess: conceptually useful, but not metaphysically real. I also emphasize that for Leibniz, numerical concepts presuppose unified substances, and number itself is in tension with real being. I introduce the distinction between wholes and genuine wholes which reveals why infinite numbers are uniquely problematic: unlike finite numbers, which can be treated as conceptual wholes with determinate bounds, infinite numbers fail to form wholes even in thought and thus cannot be meaningfully counted.

Chapter 3 then examines Leibniz's conception of divine infinity. I argue that only God satisfies the conditions of true infinity—simplicity, maximality, and ontological/conceptual priority—and that Leibniz's use of the term "hypercategorematic infinite" marks a deliberate departure from any quantitative understanding. Drawing again on Schechtman's distinction between quantitative and qualitative infinity, I show how Leibniz's conception of divine perfection fits the latter model. This view clarifies how finite beings express divine perfections only through limitation, and how Leibniz's top-down metaphysics rests on the priority of simple and positive predicates. The chapter also explores the implications of this framework for created reality, which, though infinitely divided, remains qualitatively finite and metaphysically dependent.

1. WHOLES AND PARTS, LEIBNIZ'S MEREOLOGICAL NIHILISM

Before we can understand why Leibniz rejects the possibility of infinite numbers, we must first understand what he takes a number to be. For Leibniz, a number is a kind of whole, and a whole must be composed of parts that together form a true unity[3]. However, not every collection of parts forms a unity in the relevant sense. Some collections are mere aggregates or multitudes, which lack the underlying structure required to count as real beings. In this chapter, I examine Leibniz's conception of unity and the arguments he gives for denying the reality of aggregates. I then show how, on this basis, he denies the possibility of infinite aggregates and treats them instead as logical fictions.

1.1. WHAT IS A TRUE UNITY?

Leibniz holds that being and unity are conceptually and metaphysically intertwined. A substance, to qualify as a genuine being, must be a true unity—that is, it must be one thing, not merely many things considered together. In a well-known formulation from a 1687 letter to Arnauld, he writes:

[3] For example, in a letter to Jakob Thomasius dated 20/30 April 1669, Leibniz writes: "Number is defined as one, and one, and one, etc., or as unities" (A II 1, 35; C 100). This view treats "one" not as a number itself, but as a foundational unit from which all numbers are constructed. The number two is defined as 1 + 1, the number three as 1 + 2, and so on. Leibniz maintains this conception throughout his life. In a letter to Louis Bourguet from 1715, for instance, he writes: "It is true that the concept of number is finally resolvable into the concept of unity, which is not further analyzable and can be considered the primitive number" (G III, 583; C 664). As Ohad Nachtomy notes, this account of number has a long intellectual history, shared by thinkers such as Thomas Hobbes, and reaching back to Aristotle, Maimonides, and Thomas Aquinas (Nachtomy 2019, 84).

> To be brief, I hold this identical proposition, differentiated only by the emphasis, to be an axiom, namely, that what is not truly one being is not truly one being either. It has always been thought that 'one' and 'being' are reciprocal. (A II 2, 171; Ma 121)

On this view, unity is not just a property of being it is a condition for something to count as a being at all.

This has consequences for how we understand wholes and their parts. A collection of parts is not a unity simply in virtue of being grouped together. For Leibniz, such groupings—whether they are physical arrangements like a machine or a flock of sheep—do not count as beings in the strict sense. They are aggregates or multitudes, not substances. A true unity must be "indivisible,"[4] in the sense that it is not a plurality of things but one thing through and through.

This distinction plays a foundational role in Leibniz's metaphysics. Without it, there would be no principled way to distinguish between real beings and merely apparent ones. As we will see in later sections, it also plays a crucial role in his rejection of infinite aggregates. For if an infinite collection cannot be unified into a single thing, then it cannot be a being—and certainly not a number.

To understand what Leibniz means by a true unity, it might be useful to first look at the kinds of things he explicitly denies this status to. In his metaphysical and logical notes from mid-1685, Leibniz writes that "actually no entity that is really one is composed of a

[4] There is a transition in Leibniz's thought regarding the relationship between wholes and unities. The view I attribute to him throughout most of this dissertation assumes that anything composed of parts lacks true unity. However, there was a period in which Leibniz held a more permissive view—namely, that something with parts could still possess true unity. Scholars disagree about when he adopted the stricter position. Laurence Carlin (1997, 23), for instance, argues that the shift occurred around 1700, while Gregory Brown (2005, 463) maintains that Leibniz already held the stricter view by the early 1680s. My reading aligns more closely with Brown's chronology.

plurality of parts (…) and those things that have parts are not entities, but merely phenomena.” (A VI 6, 627; ToC 271) This point can be illustrated with examples he gives a year later in a 28 November/8 December 1686 letter to Arnauld: a water pool with all the fish in it, a flock of sheep, an army. These are all cases where the apparent whole is nothing more than a collection of parts, held together by “the fabrication of our minds”, lacking any internal principle of unity. (A II 2, 120; Ma 94)

A common feature of such cases is that they are reducible to their components. The ship is nothing but planks and nails; the frozen fish is just ice and flesh arranged in a certain way. In each case, there is no additional ontological commitment beyond the parts. These are what Leibniz calls unities *per accidens* (A VI 4, 401) —things that appear as wholes only from a certain perspective, typically the perspective of a perceiver who groups them under a common description.

By contrast, a true unity is not simply a grouping or arrangement. It is a being that is one in itself, not by virtue of how we regard it, but in its own metaphysical structure. For Leibniz, simple substances (monads) meet this condition. They are not composed of parts and are not divisible into smaller constituents. As such, they qualify as unities *per se*, unities not dependent on our perception or conceptual grouping.

This standard has significant consequences. If something must be indivisible and non-composite in order to count as a true unity, then most familiar physical objects—bodies, machines, even organisms—fail the test. Unless a thing possesses some additional internal principle (such as a substantial form or dominant monad), it does not qualify as a true unity, and hence not as a substance or a being in the strictest sense.

This emphasis on indivisibility as a criterion for unity becomes especially central in what scholars have called Leibniz’s final metaphysics. As Maria Rosa Antognazza notes

(Antognazza 2016, 84), Leibniz comes to treat simplicity—not having parts—as the defining condition for what counts as a metaphysically fundamental entity. The thought is that anything composed of parts is not metaphysically basic, because its being depends on the being of its constituents. In this sense, simplicity is not just a structural property, but a metaphysical one: to be simple is to be a terminus in the chain of explanation. If we are to account for the existence of composite entities, we must ultimately appeal to entities that are not themselves composed. That is why, for Leibniz, true substances must be simple.

This position also provides a concrete interpretation of the more general claim that substances must possess intrinsic unity. It clarifies what it means to be one *per se*, rather than merely one *per accidens*. While aggregates such as piles of stones or organisms may be regarded as unified in some looser sense, they do not meet the stricter condition of indivisibility. The strongest form of unity belongs, on this view, only to the simple. Whether this is the only viable criterion for per se unity remains an open and debated question among interpreters. But at minimum, Leibniz appears to take simplicity to be sufficient for genuine unity—and hence for substantial being—in his mature writings.

1.2. MOTIVATIONS FOR MEREOLOGICAL NIHILISM

Having clarified what counts as a true unity for Leibniz, we are now in a position to see why he denies that aggregates—including physical bodies—qualify as substances. This denial follows from his deeper metaphysical principle that being requires unity. Since aggregates are not truly one, they cannot be truly beings. The view that no composite is a real being in its own right is often called mereological nihilism, and Leibniz accepts a version of it[5]. Although

[5] Although many different versions of this view can be found in Leibniz, I'll take the one from *Monadology* ¶2 (1714) as it seems to me to be the most succinct: "there must be simple substances, since there are compounds; for the compounded is but a collection or an *aggregate* of simples." (G VI, 607; C 643)

he sometimes allows that aggregates "exist" in a derivative or phenomenal sense, he consistently denies that they are *entia per se*, beings that exist independently or fundamentally. In what follows, I examine two motivations Leibniz offers to support this view: one based on the absence of unity, and another based on the inability of aggregates to persist through time.

Leibniz's first motivation for denying the reality of aggregates comes from the failure of attempts to explain how a plurality of parts might compose a genuine unity (what could be seen as a version of what we call nowadays the Special Composition Question). As Harmer (2022) emphasizes, this is an indirect motivation: Leibniz does not assume from the outset that aggregates are unreal, but he observes that all extant answers to the Special Composition Question fail. He considers and rejects four candidates for when some things might compose a true unity: (1) common reference (when things are named collectively), (2) spatial proximity (when parts are in contact), (3) common motion (when parts move together), and (4) common end (when parts are organized toward a shared purpose). Leibniz rejects each of these by offering counterexamples. For instance, he notes that assigning a common name to two distant diamonds does not make them one thing in substance; merely bringing them into spatial contact still results in only an accidental unity; and even mounting them on the same ring so that they move together fails to generate a genuine whole (A II 2, 120; Ma 94)[6]. Similarly, having a shared end or function does not ensure substantial unity; if it did, Leibniz argues, the officers of the Dutch East Indies Company would form a genuine substance, which they clearly do not (A II 2, 192; Ma 127)[7]. Each of these examples illustrates that no merely relational or extrinsic condition suffices for producing *unity per se*. Leibniz's

[6] From the above mentioned 1686 letter Leibniz wrote to Arnauld.

[7] From the letter to Arnauld Leibniz wrote on the 30th of April 1687.

conclusion from this indirect motivation is that composites fail to achieve the intrinsic unity required for substancehood and therefore cannot be considered real beings in their own right.

Leibniz's second, more direct motivation for mereological nihilism arises from his treatment of persistence. According to Leibniz, for an entity to be a true substance, it must persist through time as the same being (A VI 6, 51; NE, Praeface). Aggregates, by contrast, are composed of extended and divisible parts, and their apparent identity depends entirely on those parts. But the ontological status of these parts is unstable: they change at every instant. Why does Leibniz think that the parts of an aggregate change at every moment? This is related to what Richard Arthur calls the "problem of the composition of the continuum" (Arthur 2018, 20-23): how can any continuous magnitude—such as space, time, or motion—be composed of parts? Leibniz holds that if we allow such magnitudes to be composed of simple points, we run into paradoxes of the infinitely large, such as Galileo's paradox discussed earlier. His alternative view is that continuous magnitudes are not composed of inert points but of infinitely many active substances[8], each undergoing constant change in state, speed, and direction[9]. The resulting picture has a distinct Heraclitean flavour: there is no moment at which the world remains exactly as it was the moment before. Thus, no part of matter—no portion of an aggregate—remains in the same state even for an instant. Although a full treatment of these ideas would require more space than I can offer here, the line of reasoning is philosophically rich and suggests that Leibniz's mereological nihilism is motivated not only by his theory of unity, but also by a dynamic conception of substance, motion, and identity through time.

[8] Arthur notes that Leibniz's insistence on the activity of substances stands in direct opposition to the Cartesian conception of bodies and motion as purely mathematical and abstract (Arthur 2018, 21).

[9] This view is also connected to Leibniz's repeated claim that every body is constantly acted upon by other bodies. It appears throughout his writings, from the 1676 dialogue *Pacidius to Philaletes* (A VI 4, 565; ToC 208) to *Monadology* ¶65 in 1714 (G VI, 618; C 649).

1.3. INFINITE AGGREGATES AND LOGICAL FICTIONS

So far, I have discussed how finite aggregates do not qualify as substances in Leibniz's metaphysics because they lack the unity and persistence required for genuine being. Here I extend that conclusion to the case of infinite aggregates. There is reason to think that Leibniz not only denies them the status of substances but treats them as logical fictions—constructs that function in discourse or mathematics, but do not correspond to any real unity. This rejection rests on metaphysical reasons and is closely tied to Leibniz's nominalism about collections [10].

As Richard Arthur emphasizes, Leibniz is a strong nominalist about collections: an aggregate has no more reality than the constituents that compose it (Arthur 2011, 95-104). In his correspondence with De Volder in June 1704, Leibniz offers an explanation of this view:

[10] On this point, see (Constantini 2023). Filipo Costantini argues that Leibniz's nominalism about aggregates is deeply connected to his philosophy of logic. In his formal notation, aggregate terms do not refer to new entities but are logically reducible to their parts—a principle which in the literature is sometimes coined as Ontological Composition as Identity, according to which the aggregate and its constituents have the same ontological import. On this view, the act of combining terms to form an aggregate—whether finite or infinite—does not yield a metaphysical whole, but only a logical shorthand. Costantini emphasizes that Leibniz's logical framework includes a formal operation of Real Addition (denoted by $\oplus$), which allows any plurality of terms—finite or infinite—to be combined into a single expression. Real Addition satisfies idempotence, commutativity, and associativity. This operation supports Unrestricted Composition**:** any plurality, however heterogeneous or numerous, yields a well-formed aggregate term. Leibniz even formalizes a containment relation in these terms: $C(x,y) \equiv \exists z(y \oplus z=x)$ $C(x, y) \equiv \exists z\ (y \oplus z = x)$ $C(x,y) \equiv \exists z(y \oplus z = x)$, meaning that y is contained in x if x can be formed by adding something to y. These logical tools allow us to construct terms like "the sum of all natural numbers" or "God $\oplus$ body $\oplus$ heat $\oplus$ point," but, crucially, without committing to the existence of a corresponding metaphysical whole. Leibniz draws a strict line between what can be represented syntactically in logic and what exists ontologically as a real unity. Examples such as "a flock of sheep," "a bundle of firewood," or "the aggregate of all Roman Emperors" are allowed by the logic, but only as shorthand for distributive predications over individuals. The same applies to infinite aggregates: they can be referenced as terms, but they lack metaphysical unity. See (Constantini 2023, 8-15).

> Anything that can be divided into many (already actually existing) things is aggregated from many things, and a thing that is aggregated from many things is not one except in the mind, and has no reality except that which is borrowed from what it contains. From this then I inferred that there are therefore indivisible unities in things, because otherwise there will be no true unity in things and no reality that is not borrowed, which is absurd. (A II 4, 248; DeV 301)

Whenever something can be divided into actual parts, that means it could not be a real substance. The reality of the aggregate is nothing over and above the reality of its constituents. This is not merely a claim about infinite collections—it applies equally to finite ones. The unity of an aggregate lies in the mind that perceives it, not in the aggregate itself[11]. This insight reinforces Leibniz's position that aggregates are not genuine beings, but mental groupings—unities *per accidens* rather than unities *per se*.

This nominalist stance aligns closely with what I have described above as a form of mereological nihilism. While Leibniz allows that aggregates may exist "in a certain sense," he denies them independent metaphysical status. From this perspective, it seems that nominalism about collections and mereological nihilism point in the same direction: both deny that aggregates constitute genuine beings.

The distinction between parts and constituents (or requisites) might also help clarify Leibniz's view. A thing may be said to be an aggregate of its constituents if each of its actual parts presupposes those constituents, even if it is not composed from them in a strict sense.

[11] This is not to deny the famous Leibnizian distinction between the mere phenomena (for which there are no things outside of the perceivers mind out if which the phenomena results) and the well-founded phenomena (for which there are such things). Leibnizian nominalism is only claiming that there is not a whole which can be postulated as something over and above its parts. If you have two plates, for example, you do not also have a set of two plates (*pace* Cantor).

On his view, if A is in B, then once B is posited, A is immediately posited too[12]. But this does not mean that A is a part of B unless it is homogeneous with B. Hence, monads are not parts of matter; they are not homogeneous with it. As Leibniz explains in a note from 1690 where he replies to some objections put to him by the Cartesian scholar Michelangelo Fardella: "Nothing can be a part unless it is homogeneous with the whole, but substance is not homogeneous with matter or body any more than a point is with a line." (A VI 4 B, 1671; trans. in (Arthur 2011, 108)) This reinforces his claim that while matter contains monads, it is not composed of them. Matter, like a herd or a house, is a multiplicity perceived as one, but its unity is only notional.

Seen in this light, Leibniz's treatment of infinite number makes more sense. If infinite aggregates are not real unities, then the number that would result from counting them is also not real. Just as one cannot meaningfully assign a number to an infinite series without a unifying totality, one cannot meaningfully posit an infinite number without a metaphysical unity to ground it. The denial of infinite aggregates and infinite numbers is thus not an ad hoc way of avoiding paradoxes of the infinitely big. It follows directly from Leibniz's central metaphysical commitment that being requires unity, and that unity cannot be constructed from plurality. The rejection of the infinite in Leibniz's philosophy is thus not a limitation, but an outcome a deeply unified view of reality.

[12] A 1680 fragment quoted by Arthur (2011, 105) lends support to this view.

2. QUANTITIES AS CONCEPTUAL DEVICES

Here I discuss Leibniz's view of quantity and the role it plays in his rejection of infinite numbers. For Leibniz, quantities are not objective features of the world but ideal constructs—mental comparisons grounded in unified substances. I begin by reconstructing Leibniz's account of quantity as a conceptual operation that presupposes the existence of a unified whole. I then contrast this with additive views of quantity, drawing on Anat Schechtman's account of the Aristotelian-Lockean tradition. I examine Leibniz's acceptance of the infinite only in a syncategorematic sense and discuss how this distinction coheres with his denial of infinite numbers. I also address the question of why this kind of denial of infinite numbers cannot be also be stretched to finite numbers.

2.1. WHAT IS A QUANTITIY?

In Leibniz's philosophy, quantities are not real entities existing independently in the world, but conceptual devices that express relations grounded in unified substances. A quantity is not a property of plurality as such, but a way of comparing a given whole to a unit under a condition of homogeneity. This is why, for Leibniz, number arises only when a true unity is given, and this unity can be mentally compared, divided, or measured.

Nicholas Rescher has offered one of the clearest reconstructions of this conceptual procedure (Rescher 1955). On his reading, Leibniz understands quantity as the outcome of a three-step intellectual operation. First, one must select a homogeneous unit of measure—a standard that matches the kind of magnitude to be measured. Second, one applies a process of successive subtraction, comparing the whole to the unit until it is no longer divisible by it. Third, when subtraction can no longer proceed exactly, one approximates a value using a ratio or a series. The resulting quantity is thus an ideal or conceptual result: it presupposes a unified object to which the unit can be applied, and a mental process of abstraction that yields the number.

This treatment of quantity is explicitly non-ontological. As Rescher emphasizes, Leibniz denies that "number" refers to something in the object itself[13]. Rather, it is an expression of the mind's capacity to conceptualize pluralities within wholes.[14] This coheres well with Leibniz's broader view that the world is composed of individual substances—not of quantities, facts, or aggregates. In the words of Robert Adams, "Leibniz's world is composed of things, not facts" (R. M. Adams 1994, 62); this includes things that may be measured, but not measurement itself as a substance. The conceptual status of quantity parallels Leibniz's treatment of space and time, which are not independently existing entities but relations that depend on the actual states and modifications of monads. As Richard Arthur has emphasized, space and time are ideal constructs—"abbreviated ways of talking"—that arise from the comparison of intrinsic features of substances[15]. Like aggregates, they have no existence apart from the things they relate, but they nonetheless express real truths. Arthur highlights a strong

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[13] Nachtomy also puts it interestingly: "Leibniz holds that 'being' and 'number' are not only distinct but also opposed. As we have seen here, Leibniz maintains that a number is not a true being, but only a being of reason (…) While any plurality presupposes single units, the units themselves need not be regarded as one in number. Instead, they should be regarded in the foundational sense, as essential units presupposed by any plurality." (Nachtomy 2019, 90)

[14] Rescher reconstructs Leibniz's conception of quantity as a three-stage process grounded in successive division. First, a homogeneous unit (U) is selected for measuring a whole (W). Then, U is repeatedly subtracted from W until it can no longer be exactly subtracted. At that point, a residual magnitude (R) remains. Because W may not be a multiple of U, the result is expressed not as a single quotient but as a sequence of quotients: Q = (n1, n2, n3, ...), where each term represents a successive stage in the approximation of W by U. This sequence defines the ratio between W and U conceptually, even in cases where no exact numerical value is obtained. The quantity, therefore, is not something discovered in the object, but something constructed by the intellect through an idealized process. See (Rescher 1955, 109-110).

[15] Leibniz makes this point explicitly in a short fragment titled *On the Reality of Accidents*, probably written around 1688, where he writes: "Up to now I see no other way of avoiding these difficulties than by considering abstracta not as real things but as abbreviated ways of talking; and to that extent I am a nominalist, at least provisionally." Quoted in (Arthur 2014, 157).

analogy in Leibniz's thought between the ontological status of aggregates and that of relational structures like space, time, and quantity: in all three cases, the structure is ideal in metaphysics but still grounded in the mind-independent world. In Leibniz's words from the *New Essays* (1704):

> It may be that a dozen or a score are mere relations, and are constituted only by relation to understanding. The units are separate and understanding gathers them together, however scattered they might be. However, although relations are the work of the understanding, they are not baseless or ideal. (A VI 6, 145; NE II, xii, §5)

2.2. THE REJECTION OF INFINITE QUANTITY

A natural context for Leibniz's conceptualist account of quantity is what Anat Schechtman has identified as the Aristotelian-Lockean view of quantity (Schechtman 2023, 337-348). On this view, a quantity is a kind of extensive magnitude that satisfies three conditions: parthood (a quantity is composed of parts), order (there is a determinate linear ordering among quantities), and addition (any two quantities belonging to the same class can be added to yield a third, larger quantity). When these three conditions are in place, Schechtman also defines infinity in quantitative terms: a quantity is infinite just in case it has arbitrarily large finite parts, or, equivalently, when addition has no upper bound. This understanding of infinity is quite intuitive: just as there is no largest number, there need be no greatest quantity of length, duration, or extension[16].

Leibniz accepts this approach to quantity only in the finite case.?? As Anat Schechtman has emphasized, his rejection of infinite numbers is not simply a reaction to

[16] Schechtman notes that this understanding of infinity was also quite close to Newton. For example, he thought an inch and a foot both contained an infinite number of infinitely small parts, and that the latter simply had twelve times as many. See (Schechtman 2023, 350).

technical difficulties or historical limitations, but stems from a philosophical analysis of what makes quantitative concepts coherent. For him, a quantity must be a completed unity. Infinite aggregates, by contrast, fail to form wholes, and thus fall outside the domain in which Euclid's Axiom ("the whole is greater than the part") applies. Because numbers, for Leibniz, are wholes constructed from unities, and because an infinite multitude cannot be unified, no such number can exist (Schechtman 2019, 1137). The appearance of number in such cases is only iterative—we can always add one more—but never converges on a determinate totality. As Schechtman notes, Leibniz accepts the principle that *for any number, a greater one exists*, but not that there exists *a number greater than all finite numbers*—which would be required for there to be an actual infinite number.

This kind of rejection we see Leibniz employing here reflects a distinction he inherits from scholastic logic: the contrast between categorematic and syncategorematic uses of terms. This distinction, which dates back to the late antique grammarian Priscian and was formalized by high scholastic thinkers, originated as a semantic distinction: categorematic terms signify on their own (e.g., "man," "tree"), whereas syncategorematic terms gain meaning only in combination with others (e.g., "every," "more than"). In the medieval tradition, the distinction between categorematic and syncategorematic terms was extended to the concept of infinity, resulting in two different notions of the infinite. A categorematic infinite refers to an infinite quantity—that is, a collection of things whose number exceeds every finite number. For example, to say that there will be an infinity of men dead categorematically is to claim that there will come a time when infinitely many men are dead. By contrast, a syncategorematic infinite refers to the fact there is no end to an indefinitely extended series. It does not assert the existence of an infinite collection, but rather that for every finite quantity, a greater one can be given. So, to say that an infinity of men will be dead syncategorematically means only that there will never be a final man who dies—each man will die in his own time, with no end to the sequence. In other words, while the categorematic infinite presupposes an infinite totality, the syncategorematic infinite only denies that there is a limit to the given series. (Moore 2001, 51-52)

Leibniz adopts and reinterprets the medieval distinction in his own terms. He permits references to the infinite in a syncategorematic sense (claims like "for every finite number, there exists a greater one"). Such statements are perfectly meaningful and even true, yet they do not entail the existence of a determinate, completed infinite number. To assert the existence of a number greater than all finite numbers—a categorematic infinite—would, for Leibniz, involve a contradiction. In this respect, Leibniz holds that the infinite can be spoken of and applied in reasoning[17] but not counted or treated as a number.

This position is consistent with Leibniz's acceptance of what he calls the actual infinite—an infinite that is not merely potential or indefinitely extensible, but in some sense already given. Crucially, however, this infinite is not a totality or a completed whole that could be measured or contained by a number. Rather, the actual infinite, for Leibniz, is complete in the sense that nothing is lacking, yet cannot form an enumerable set. In this way, Leibniz's rejection of infinite number is entirely compatible with his broader metaphysical and mathematical commitment to the reality of the actual infinite. Leibniz himself acknowledges this compatibility in a letter to John Bernoulli dated 13 January 1699, where he writes:

> When it is said that there are indefinitely many terms [or things], it is not being said that there is some specific number of them, but that there are more than any specific number. (A III 8, 40; trans. in (Schechtman 2019, 1137))

He states the point even more explicitly a few years later in the *New Essays* (1704):

[17] E. g. Leibniz sees infinitesimals as a kind of 'useful fictions'. See (Moore 2001, 64).

> It is perfectly correct to say that there is an infinity of things, i. e. that there is always more of them then then one can specify. But it is easy to demonstrate that there is no infinite number, nor any infinite line or 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 'syncategorematic' infinite, as they called it, but not a 'categorematic' one. (A VI 6, 157; NE II, xvii, §1)

The infinite is thus actual for Leibniz—but only as syncategorematic. Infinite numbers remain conceptually impossible. But infinite processes or series are not only permitted but indispensable in Leibnizian thought[18].

Taken together, this suggests that Leibniz's rejection of infinite numbers is not an isolated judgment but a consequence of his broader conception of quantity. For Leibniz, quantities are not properties of pluralities as such, but conceptual comparisons grounded in unified wholes. To measure is to compare a whole to a homogeneous unit under conditions of completeness and internal coherence. Infinite aggregates, by contrast, lack unity and determinacy, and so cannot support the conceptual procedures by which quantities—and thus numbers—are generated. While Leibniz allows talk of the infinite in a syncategorematic sense, he denies that infinite number can ever be an object of thought or being.

[18] From Leibniz's 1696 notes on the science of infinity: "And in general it can be said that an infinite number, an infinite line, a series composed from infinitely many terms, or an aggregate of an infinite multitude of things, is in metaphysical rigour not one thing, since they always involve the greatest number, which is impossible. But in mathematical matters they are taken as one thing as an abbreviation of speech, since they have a foundation in reality" (*Towards a Science of the Infinite*, 163)

2.3. WHY ARE INFINITE NUMBERS ANY DIFFERENT FROM FINITE NUMBERS?

At this point, one might raise the question of why the kind of conceptualism I described Leibniz as advocating would not apply equally to infinite and finite numbers. If infinite numbers and infinite collections are rejected because they lack unity, how is it that finite numbers are exempt from this criticism? Are not all finite numbers greater than one also composed of multiple parts, thus lacking unity?

To address this, it might be helpful to introduce a few distinctions. First, there is the distinction between unity and wholeness. Consider again the passage quoted above from Leibniz's logical and metaphysical notes of 1685. Here I provide a fuller excerpt:

> If, when several things are posited, by that very fact some unity [*unum*] is immediately understood to be posited, then the former are called parts, the latter a whole [*totum*]. Nor is it even necessary that they exist at the same time, or at the same place; it suffices that they be considered at the same time. Thus from all the Roman emperors together, we construct one aggregate. But actually no entity that is really one [*unum*] is composed of a plurality of parts, and every substance is indivisible, and those things that have parts are not entities, but merely phenomena. (A VI 4, 627; ToC 271)

In this extended passage, Leibniz explicitly distinguishes between *unum* (unity), on the one hand, and *totum* or "those things that have parts" (wholes), on the other[19]. This passage also provides a relatively straightforward way of distinguishing them: wholes are products of minds considering multiple things simultaneously. Wholes are thus composed of parts, and as

[19] The distinction between wholeness and unity has been observed by other scholars and supported with other texts from Leibniz's middle years. See (Carlin 1997, 12); (Brown 2005, 462ff), and especially (Harmer 2014, 246-247) where Harmer builds on this distinction the most.

Leibniz emphasizes twice here, nothing composed of parts qualifies as a genuine entity. In contrast, unities have no parts at all. The unity that wholes possess, according to Leibniz in this passage, is merely accidental.

As we saw earlier, numbers are wholes, meaning that numbers too possess only accidental unity, which amounts to saying that they do not exist as genuine entities. But this conclusion would apply to both finite and infinite numbers—returning us to the original question. By rejecting numbers as composites (wholes), is Leibniz not thereby rejecting both finite and infinite numbers alike? Indeed, he is. However, not all wholes have equal status, which brings me to another Leibnizian distinction: the distinction between wholes and fictional wholes.

Although the term *fictional wholes* does not originate with Leibniz but with Richard Arthur (2011, 93), the distinction between two kinds of wholes in Leibniz's writings becomes apparent when we consider the passages in which he discusses multiplicities that cannot even be considered as one thing[20]. As we have seen, some multiplicities *can* be considered as one—such as the case of the Roman emperors mentioned above. Although these individuals are stretched across time and space, the human mind can group them together into a single whole. But other multitudes resist this treatment, namely, infinite multitudes. And they do so precisely because they consist of infinitely many parts. Consider again, for instance, an excerpt from Leibniz's letter written in 24th of Februrary 1699 to John Bernoulli:

> I concede an infinite multitue, but this multitude forms neither number nor one whole [*unum totum*]. It only means that there are more elements than can be designated by a

[20] The question of which multiplicities can be regarded as a single entity, and which cannot, due to being "inconsistent multiplicities", also arises in discussions of the set-theoretic paradoxes associated with the Cantorian philosophy of infinity. See (Hallet 1986).

> number, just as there is a multitude or complex of all numbers; but this multitude is neither a number nor one whole (A III 8, 66; ToC lxii–lxii)

Infinite multitudes cannot even be conceived as wholes; they remain multitudes, or complexes, through and through. In order for Leibniz to treat a given multitude as a whole, it must be the case that its elements are not "more than can be designated by a number," which simply means that it must have finitely many parts. Infinite numbers, in other words, cannot represent any quantity, since the quantity they "aspire" to capture cannot be contained within a whole. This, in Leibniz's conceptualism, is what distinguishes finite from infinite numbers. Although both are wholes, in the sense of being mental constructions, not real entities, infinite wholes cannot even be thought of as wholes in the strict sense. This gives them a lower status than finite ones: they are excluded not only from the realm of substances, but also from the realm of concepts altogether.

But how can we speak of wholes at all in the case of the infinite? Why retain the distinction between wholes and fictional wholes if the latter cannot even be called wholes strictly speaking? Leibniz's answer is that we can do so "by means of a fiction of the mind." Without going into detail here about how such fictions work, it is sufficient to note that Leibniz believes we can refer to a multitude—finite or infinite—by means of a description that picks out all and only its members. For example, the description "being a Roman emperor" identifies the finite collection of Roman emperors. Similarly, the description "being divisible only by itself and one" identifies the infinite collection of prime numbers. So, we are within our rights to speak of fictional wholes—wholes with infinitely many parts—as wholes, but only so long as we think of them under a description that covers all and only the relevant elements. This is what Leibniz has in mind when he says that some wholes allow only for distributive rather than collective reference[21].

It is fitting, then, to close this chapter by quoting a passage from a supplementary note Leibniz wrote to the letter to Des Bosses from the 1st of September 1706:

> I maintain, strictly speaking, that an infinite composed from parts is neither one nor a whole, and it is not conceived as a quantity except through a fiction of the mind [*fictionem mentis*]. The indivisible infinite alone is one, but it is not a whole; that infinite is God. (A II 4, 464; DesB 53)

It is to this “indivisible infinite alone” and to the role it plays in shaping Leibniz’s philosophy of infinity that I turn in the next chapter.

[21] E. g. See the full supplementary note to the letter to Des Bosses from the 1st of September 1706: “There is also an actual infinite in the sense of a distributive whole, but not a collective one” (A II 4, 464; Desb 53)

3. GOD AS THE HYPERCATEGOREMATIC INFINITE

In the context of this thesis, the relevance of divine infinity may not be immediately clear. After all, if the problem of infinite numbers concerns part–whole relations and quantities, why turn to theology? The answer lies in the fact that, for Leibniz, the concept of infinity has its natural home in talk about God. In his own words, God is the only "true infinite"[22]—which I take to mean that, of all the things to which the concept of infinity might be applied, it properly belongs only to God. Divine infinity thus sets the standard against which all other uses of the term must be measured. As we will see in this chapter, however, the concept of infinity bifurcates into two senses: the quantitative infinite (which we have primarily discussed so far), and the qualitative infinite. There is good reason to think that Leibniz understands God's infinity as a case of the qualitative infinite, one grounded in simplicity, maximality, and priority, rather than in magnitude or number. Given the metaphysical primacy of God in Leibniz's system, this places the qualitative infinite on a higher ontological and conceptual footing than the quantitative infinite. In fact, the quantitative infinite is intelligible only in relation to the qualitative infinite—that is, any talk of infinite number or magnitude presupposes, and is subordinated to, the infinite perfection of God. This hierarchy might help to motivate why Leibniz repeatedly denies the infinite number: it fails to meet the standard set by God's infinity. While Leibniz allows that there may be infinitely many created substances, he resists describing them as forming an "infinite number." The reason is that number implies a completed totality composed of parts, whereas the infinity of God—which

[22] He states it in the *New Essays* (1704): "Rigorously speaking, the true infinite is only in the absolute which is prior to all composition, and is not formed through the addition of parts… And the true infinite is not a modification, it is the absolute; on the contrary, as soon as there is a modification, there is a limitation or something finite is formed." (A VI 6, 157; NE II, xvii, §1)

ultimately grounds all meaningful talk of the infinite—is rooted in simplicity, that is, in the absence of parts.

I begin by examining the distinction between quantitative and qualitative infinity, drawing on Anat Schechtman's analysis of qualitative infinity and its application to Leibniz's theological metaphysics. I then examine Leibniz's view that only God is infinite in the proper sense—simple, maximal, and metaphysically prior—and explore how this conception clarifies the distinction between divine and created being. In the third section, I develop the idea that Leibniz's metaphysics is structured by a top-down order of explanation in which the finite derives from the infinite through limitation. This includes a theory of perfections grounded in simplicity and positivity, as well as a view of concepts as built from primitive, irreducible predicates. Finally, I turn to the implications of this framework for created reality, showing how it informs Leibniz's rejection of infinite numbers and his claim that the world as a whole cannot form a genuine unity. The world is quantitatively infinite, but metaphysically finite—an infinite multitude, not an infinite whole.

3.1. QUANTITATIVE AND QUALITATIVE INFINITY

There is a relatively widespread assumption among historians of the philosophy of the infinite that there are broadly two distinct clusters of concepts used to describe infinity[23]. The first cluster centres around notions such as boundlessness, immeasurability, and that which is greater than any assignable quantity. This is often labelled the mathematical or quantitative infinite. The second cluster, by contrast, involves concepts like completeness, absoluteness, and perfection, and is typically referred to as the metaphysical or qualitative infinite. While the quantitative notion of infinity is well-defined in mathematical contexts, the qualitative

[23] The distinction probably originates with A.W. Moore (Moore 2001, 1-2).

infinite has often been regarded with suspicion. Some have argued that it is at best a metaphorical extension of the former, lacking clear conceptual content (Blanc 1993).

Anat Schechtman has recently offered what is, to my knowledge, the most precise and promising account of the qualitative infinite. As we saw above, she defines quantitative infinity in the Aristotelian–Lockean tradition by three conditions: parthood (a quantity is composed of parts), order (there is a linear structure of comparison among quantities), and addition (any two quantities of the same kind can be combined to yield a greater one). Infinity, on this view, arises when addition has no upper bound—when a magnitude can always be further increased by adding more parts.

Schechtman contrasts this with a different conception of infinity, one that is not grounded in division or addition, but in the intrinsic character of a simple and maximal entity (Schechtman forthcomming). On her analysis, the qualitative infinite is defined by three distinct features: simplicity (it has no parts, so it does not satisfy parthood), maximality (no greater instance is possible, so it does not satisfy addition), and priority (it is ontologically and conceptually prior to all finite beings). This provides a very clear way to understand what many early modern thinkers—Leibniz included—had in mind when they described God as infinite.

3.2. LEIBNIZ'S VIEW OF GOD'S INFINITY

The concept of infinity plays a crucial role in Leibniz's distinctive concept of God. The absolute infinite, identified explicitly with God, is ontologically[24] and conceptually[25] prior to everything limited. To say that God is the absolute means, that it is purely positive, expressing

[24] Meaning that everything else depends on it for its existence.

[25] Meaning that all of the positive descriptions for creatures have their proper domain of application only in God. More on this bellow.

without negations or limitations all and only those attributes which are capable of perfection. As he writes in the quoted manuscript from 1696:

> There is in God every nature capable of perfection, with each of these natures there perfectly or absolutely, in which respect he is an absolutely absolute Being (*Towards a Science of the Infinite*, 157).

Thus, Leibniz characterizes God as “absolutely absolute being,” containing each nature capable of perfection absolutely. This ontological and conceptual primacy underscores the fundamental difference between God and creatures.

Leibniz occasionally uses the term ‘hypercategorematic infinite’ to describe God. Unlike categorematic terms, which refer to kinds or categories, a hypercategorematic expression points beyond any specific category or determination. He writes thus in the above-mentioned supplementary note to the letter to Des Bosses from the 1st of September 1706,

> There is a syncategorematic infinite or passive power having parts, namely, the possibility of further progress by dividing, multiplying, subtracting, or adding. In addition, there is a hypercategorematic infinite, or potestative infinite, and active power having, as it were, parts eminently but not formally or actually. This infinite is God himself. But there is not a categorematic infinite or one actually having infinite parts formally. (A II 4, 464; DesB 52–53)

Antognazza suggests that the metaphysical mould Leibniz is using here is that of the Plotinian One (Antognazza 2015, 11). The Plotinian One is an entity which is somehow beyond all descriptions and categorisations. Since it is a cause of everything apart from itself, it is supposed to be the simplest possible entity. This absolute simplicity of the One makes it impossible to define since definitions require differentiations. Leibniz is gesturing towards this idea by stating that God contains all its parts eminently “as it were” but not actually.

Furthermore, the One is different from all things which derive its existence from it and since all predicates refer to beings which have some kind of composition, no predicate can be attributed to it. This is a rough reconstruction of the Plotinian route to the idea that God is ineffable i.e. nothing can be predicated of God. Given this framework, the claim that God is infinite amounts to saying that God's being cannot be described. However, Leibniz is not ascribing to this ineffability view, what he uses from the Plotinian framework rather is this idea that the properties to be found in creation are somehow the product of limitating the perfections of divinity divinity and I expand on this now particularly in the context of infinity

A particularly illuminating Leibnizian metaphor clarifies how the limited derives from the absolute: we can conceive of shapes such as circles or rectangles by imposing boundaries on infinitely extended space (*Towards a Science of the Infinite,* 151). By analogy, creatures are conceived as finite through the act of adding the limit to the infinite perfections that reside absolutely in God. This raises an important interpretative question: does this mean that the difference between God and creation is merely quantitative, a matter simply of lesser or greater magnitude? Here, Antognazza's discussion is instructive (Antognazza 2024, 675). She illustrates that while there is undoubtedly a quantitative analogy, the difference between the absolute and the limited is in fact qualitative. Just as the original Koh-i-Noor diamond qualitatively surpasses its imperfect replicas—not merely in size or clarity, but in intrinsic worth—so too does God infinitely transcend creatures, whose limited natures express divine perfections only partially and imperfectly.

Moreover, for Leibniz, divine simplicity is necessary for understanding the priority of God. Anything composed of parts necessarily depends upon these parts and is thus posterior to them[26]. Consequently, no composite entity could serve as the ground or explanation of

[26] The two arguments supporting this view, the Borrowed Reality Argument and the Multitude Argument are discussed at length in (Levey 2012).

everything else. Leibniz's insistence on God's absolute simplicity is thus not merely theological ornamentation, but a consequence of his metaphysics. This simplicity explains God's role as the ultimate ontological ground. Simplicity, however, is necessary but not sufficient condition for being divine in Leibniz's philosophy[27]. In another telling passage from 1696, he notes:

> Whenever simple and pure reality is understood, by that very fact is constituted the Maximum possible in things, or absolute infinite, in which duration, diffusion, power, cognition and anything at all that is in it, lacks limits, and in turn anything that can lack limits is in it; but the rest originate from it, and it is called God. (*Towards a Science of the Infinite,* 155).

This conception places God outside the domain of quantity altogether. His infinity is not the result of an unbounded process, but the actuality of all possible perfection. This draws a distinction that underpins Leibniz's entire framework: actual infinity, in its proper and strict sense, is beyond enumeration and can only belong to God. It sharply contrasts with the mathematical or syncategorematic infinite, which is necessarily distributive, additive, and enumerative. Thus, infinity in the "fullest" sense—actual, qualitative infinity—can strictly and exclusively be predicated of God. This provides compelling support for Leibniz's repeated insistence that God is uniquely infinite, setting clear boundaries around divine infinity, and reinforcing its central place in his philosophical theology.

A similar point is made by Ohad Nachtomy who comments on the seeming contrast between Leibniz accepting the concept of the infinite being—God—while denying the possibility of infinite number. Nachtomy frames this contrast in particularly sharp terms: the former is, for Leibniz, a paradigm of intelligibility, while the latter is a paradigm of impossibility. How can this be, especially given Leibniz's view that divine perfection

[27] After all, the created substances are as simple as God is.

involves having all possible attributes? If perfections are discrete properties, then one might expect them to be enumerable. Wouldn't this make God the bearer of an infinite number of attributes? The apparent contradiction dissolves once we acknowledge that Leibniz is working with two distinct senses of infinity: a quantitative notion in the case of number, and a qualitative or non-quantitative notion in the case of God (Nachtomy 2019, 51-62)[28]. This supports the account offered by Schechtman: divine infinity does not involve the addition of parts, but rather the simplicity, maximality, and priority of all perfections in a being. Nachtomy emphasizes that, for Leibniz, perfections are not elements in a collection that can be added up. Attempting to count them would be an attempt to quantify the divine, and this would be to impose limits where none exist. The very act of enumeration implies limitation, and so contradicts the nature of the infinite[29]. Leibniz's rejection of infinite number is thus not an objection to the concept of infinity itself. On the contrary, he sees infinity as a highly useful and coherent notion when properly understood. Against Descartes' view that we should speak only of the indefinite—since the infinite is beyond our grasp—Leibniz maintains that the concept of infinity is both meaningful and necessary, particularly in theology and metaphysics. He agrees that God's infinity is unlike anything else, but he does not infer from this that it is unknowable. For Leibniz, the infinite is not a limit of our knowledge, but a precondition for understanding reality.

[28] Nacthomy argues for the identical claim in (Nachtomy 2011, 946) where he maintains that the same holds for Spinoza's view of God's infinity

[29] Again, there is a strong point of contact here between Spinoza and Leibniz. As Nachtomy points out, both philosophers identify infinity, indivisibility, and uniqueness as essential traits of substance. For both, God's infinity is not measurable: to quantify God would be to introduce constraints. But Leibniz insists that there is a need for an *a priori* proof that God, i. e. the infinite being is possible. In a note on Spinoza's Epistle 12 from the year 1676, Leibniz even accepts a version of the three degrees of infinity (infinitum, maximum, omnia), adapting it to his own metaphysics (A VI 3, 276–282; ToC 103–115). On this view, only God—the absolute—is properly infinite; created substances may achieve a maximality of their kind, but not infinity itself. See (Nachtomy 2019, 65-73).

These insights strongly support and reinforce Anat Schechtman's account of qualitative infinity. Her characterization of the qualitative infinite through the three conditions of simplicity, maximality, and priority finds clear and robust confirmation in Antognazza's and Nachtomy's interpretation of Leibniz. Specifically, it underscores that divine infinity for Leibniz is absolute and purely positive (simplicity), that God contains every perfection absolutely, without limitation or possibility of greater instance (maximality), and that God's absolute nature metaphysically precedes all finite and composite beings (priority). Antognazza further enriches our understanding by clarifying how precisely the limited and finite perfections of creatures arise through metaphysical bounding or limitation of the absolute perfections found in God. Together, these insights confirm Schechtman's account as reflective of Leibniz's mature understanding of divine infinity. The distinctively Leibnizian conception of qualitative infinity—an infinity that properly applies exclusively to God—is thereby clearly delineated, supporting Schechtman's conceptual distinctions and providing a robust philosophical foundation for Leibniz's theological metaphysics.

God's infinity is thus not a matter of magnitude but of 'metaphysical' fullness: the actuality of all perfections unified in a being that precedes all categories and grounds all possibility. For Leibniz, to call God infinite is not to speak of extension or enumeration, but to articulate the ultimate unity and sufficiency of divine being. In the next two sections, I explore how this conception of God as hypercategorematic infinite shapes Leibniz's understanding of created reality—particularly the finitude, limitation, and dependency of all creatures.

3.3. THE PRIORITY OF THE INFINITE

As we saw above, in Leibniz's philosophical theology, God is not merely the most powerful or knowledgeable being, but the ground of all reality. This top-down structure shapes how finite beings are to be understood. Created substances do not possess perfections in themselves, but rather express limited approximations to perfections that exist fully and simply in God. The infinite is metaphysically and conceptually prior to the finite; the finite is intelligible only as a bounded and imperfect reflection of what is absolutely and unboundedly real.

Robert Adams notes that this top-down approach to philosophical theology present in Descartes, Spinoza, Leibniz, and Kant contrasts with explanatory strategies in early modern natural science, which increasingly favoured bottom-up explanations (R. M. Adams 2007, 91-92). There, complex organisms and behaviour of bodies were explained in terms of less perfect physical constituents like cells, molecules, and atoms. As Adams observes, this bottom-up approach to explanations of the natural phenomena was a part of the rebellion against Aristotelian natural philosophy with its substantial forms as the dominant principles of explanation. In early modern philosophical theologies, by contrast, the order of explanation runs from the perfect to the imperfect. Perfections such as power, knowledge, and being are not built up from limitations; rather, limitations are introduced into what is originally maximal and unbounded. The reality of creatures is therefore not independent, but derived through limitation.

On Leibniz's view, divine perfections are simple, positive, and absolute. They are not composed or constructed from other features, nor do they involve negation or limitation. A created being cannot possess such a perfection, since all finite beings are composite and determinate. Instead, creatures express degrees of approximation to perfections such as knowledge or power. For example, a creature may be said to approximate power to some finite degree, but it does not possess "power" in the same way God does. The property it has is complex: it includes a limiting operator and is therefore distinct from the divine property of power it approximates. This avoids the implication that perfections can be partially possessed like divisible quantities. This distinction can be seen clearly in the case of qualitative properties such as sweetness. Saying that one thing is sweeter than another does not imply that sweetness has parts, nor that the less sweet thing contains a literal portion of the sweet thing's property. Degrees of sweetness do not introduce divisibility into the quality itself. Likewise, created beings do not instantiate parts of power or knowledge; rather, they express those qualities in a limited way, through degrees of approximation to the divine perfection.

The view that all simple properties must be absolutely positive relies on Leibniz's philosophy of logic in which concepts are either simple or constructed from simple concepts by means of logical operations such as conjunction and negation[30]. For Leibniz, simple predicates are not the product of logical operations. They are primitive and irreducible. And because negation is a logical operation rather than a predicate with some non-logical content, any truly simple concept must be absolutely positive. This is what makes perfections, in the strict sense, simple, maximal, and prior to everything else. And if there is "only one true infinite", all of these perfections can exist only in God.

Leibniz recognized that we may not be able to epistemically access these perfections through just analysing whatever complex properties we find in the created world. From the 1680s onward, he increasingly held that human minds cannot distinctly grasp primitive concepts or 'concepts conceived through themselves'[31] which are the only properly divine properties. We do not understand distinctly enough how the natures of things flow from God, nor how the ideas of things flow from the idea of God, but we know that they do. In this sense, the infinite is not only ontologically prior, but also epistemically prior: we derive finite

[30] He seems to treat conjunction as something 'constructive' as it combines content, and negation as something 'limiting' as it subtracts and blocks content. This is discussed in (R. M. Adams 2007, 106).

[31] Sources for this are quoted in (R. M. Adams 2007, 112).

knowledge from the idea of an infinite perfection, even if we do not fully comprehend that perfection.

This is especially relevant in the case of attributes which are traditionally ascribed to God such as omniscience or omnipotence[32]. These may not be mere extrapolations from familiar predicates like "knows some things" or "has some power." Instead, they may pick out properties that only God can instantiate, and which are not reducible to degrees of any finite analogue. Omniscience, for example, may not be "maximum knowledge" as we understand it, but a qualitatively distinct mode of cognition—complete and infallible. In this way again, the perfections found in God are not only greater than those found in creatures; they are different in kind.

Leibniz's metaphysics thus reflects a strong commitment to the priority of the infinite. All that is real in creatures derives from what is found simply and fully in God. The infinite is prior not only in being, but in explanation and in thought. The finite is intelligible only as a limitation of the perfect. This top-down structure also clarifies the ontological status of created beings. Since all reality in creatures derives from divine perfections by way of limitation, it follows that created substances lack the kind of unity, simplicity, and fullness found in God. In the next section, I explore how this framework shapes Leibniz's account of finite substances and the metaphysical limits of the created world—particularly his rejection of infinite numbers and his claim that the world as a whole cannot form a true unity.

3.4. INFINITY OF THE CREATED REALITY

[32] As noted earlier, for omniscience and omnipotence to qualify as divine attributes in Leibniz's framework, they must be conceptually simple—but it is by no means obvious that they are. I do not attempt to argue for the simplicity of these attributes here, as my central argument does not depend on that claim. My aim is simply to illustrate that Leibniz's skepticism about the human capacity to comprehend divine attributes has important consequences: many properties we routinely ascribe to God in everyday discourse may, on closer analysis, have a significantly different meaning within the framework of divine simplicity.

The conceptual framework elaborated above directly shapes Leibniz's understanding of created reality. Leibniz famously asserts that matter, space, and time are infinitely divided, each possessing a certain quantitative infinity. Every body is composed of an actual infinity of parts, and every temporal moment is divided into ever smaller durations without limit. Time and space are infinitely extended (A II 4, 250; DeV 305). Yet, as I clarified above, this quantitative infinity is distinct from genuine metaphysical infinity. Created beings are still finite, dependent, and imperfect. Their perfections are partial and derivative. They express perfections that are present in God absolutely, but only in limited ways. For Leibniz, this metaphysical limitation defines what it means to be a creature.

This contrast between the absolute and the limited also explains Leibniz's rejection of monism. He opposes the Spinozistic view that creatures are modes of a single divine substance. According to Antognazza, this has to do with the fact that, for Leibniz, every modification, determination, and differentiation of properties introduces some kind of negation (A VI 3, 520). And properties which include negation cannot be ascribed to God as that is incompatible with its pure positivity: "if there are limitations and limited properties, limited properties require bearers of those properties other then God, for God to remain a purely positive being." (Antognazza 2024, 681)

This might help clarify Leibniz's rejection of the idea that the created world, considered as a totality, could form a genuine unity (A II 4, 427; DesB, 32). The created world comprises infinitely many substances whose perfections are always limited and derivative. Taken collectively, these substances lack any intrinsic principle of unity. Consequently, the world as a whole does not constitute a single being, and no number can properly be assigned to it. It is an infinite multitude, not an infinite whole.[33] To better understand why this is so, it

[33] Richard Arthur aptly puts it, "the world or infinite accumulation of substance is no more one or a whole than infinite number itself." (Arthur 2001, 110)

is useful to distinguish two different kinds of infinities in Leibniz's thought: extensive infinities and non-extensive infinities. An extensive infinity refers to something unbounded in magnitude or extent—such as infinite space, infinite time, or an infinitely ascending numerical sequence (for example, 1 + 2 + 3 + …). These infinities are characterized by continuous extension or unending increase. Crucially, extensive infinities cannot form genuine wholes or unities because their magnitude diverges without limit; there is no finite or bounded whole they can constitute. Richard Arthur suggests that the created world, precisely because it encompasses substances nested indefinitely into larger aggregates without bound, exemplifies this extensive infinity (Arthur 1999, 112)[34]. It is unbounded, open-ended, and therefore incapable of forming any genuine unity or whole. In contrast, non-extensive infinities refer to cases involving infinitely many progressively smaller pieces within a boundary, where infinite constituents can still sum to a finite magnitude. This occurs in the case of organic bodies. Although composed of infinitely many nested parts and aggregates, each smaller and more finely divided, organic bodies are limited and finite in size. Because their infinite division occurs within finite spatial boundaries, their structure resembles an infinite converging numerical series, such as the Dichotomy series: 1/2 + 1/4 + 1/8 + …, whose terms diminish progressively and sum to a finite limit. As Leibniz writes in 1698:

> When I say that the infinite series of fractions 1, 1/2, 1/4, 1/8 etc., is equal to 2, I mean that if each of these fractions is assumed and none besides, then neither more nor less is assumed than what is in 2. And in this sense it is understood that the whole infinite series is equal to 2, so that what in fact is called a collective whole is understood to be a distributive one. (*Towards a Science of the Infinite*, 164)

[34] Richard Arthur developed this view in the context of a debate over whether Leibniz's account of corporeal substance, i.e., an organic body joined to a soul, commits him to treating the world as a corporeal substance, with God as its soul. Both Arthur and Laurence Carlin support the view outlined above (Carlin 1997, 12), while Gregory Brown—less plausibly, in my view—argues that organic bodies possess intrinsic unity (*unum per se*), whereas the world cannot have this kind of unity (Brown 2005, 454).

Arthur calls the kind of unity these bodies possess an *arithmetic unity*. Organic bodies thus admit of finite quantification and can be considered wholes in a loose, numerical sense. Their finite size and bounded structure allow the infinite parts to sum up into a finite, limited totality. Nevertheless, arithmetic unity alone does not amount to genuine or metaphysical unity. Even though an organic body's infinite dividedness sums to a finite magnitude, it remains composite, dependent entirely on its component substances. True metaphysical unity requires intrinsic indivisibility—an internal principle of oneness that cannot be achieved by mere summation, no matter how finite the total. Thus, while metaphysical unity implies arithmetic unity (a truly indivisible unity would be numerically whole), arithmetic unity does not imply metaphysical unity. Finite organic bodies, possessing only arithmetic unity, may nonetheless be considered as 'ensouled,' since Leibniz views them as unified by a dominant monad. The created world, on the other hand—being extensively infinite, unbounded, and lacking even arithmetic unity cannot be considered a genuine whole, much less a substance or something ensouled.

Yet why is arithmetic unity insufficient for generating genuine wholes whose parts can be enumerated? The reason is that true enumeration or counting, in Leibniz's metaphysics, fundamentally presupposes indivisible units. To count is to identify discrete, stable, and indivisible items as units. Arithmetic unity, however, involves infinite subdivision into progressively smaller constituents. Even though these infinite constituents sum to a finite total, the unity thereby achieved remains fundamentally composite and dependent on external arrangement. Arithmetic unity never achieves intrinsic indivisibility or the internal principle of identity that genuine enumeration requires. It is precisely because the unity of a body presupposes infinite division—however finite the resulting sum—that it fails to provide truly discrete or determinate identities necessary for metaphysical counting. Thus, limited infinite aggregates (such as organic bodies) can only be enumerated conceptually, never strictly metaphysically. Unlimited infinite aggregates, by lacking even this arithmetic unity, remain entirely incapable of supporting enumeration. In the letter to Des Bosses from the 11th of March 1706, Leibniz puts the point thus:

> Arguments against an actual infinity assume that, with this allowed, there exist an infinite number; likewise, that all infinities are equal. But it must be recognized that an infinite aggregate is in fact not one whole, or endowed with magnitude, and that it cannot be enumerated. And, accurately speaking, in place of "infinite number," we should say that more things are present than can be expressed by any number; or, in place of "infinite straight line," that a line is extended beyond any specifiable magnitude, so that there always remains a longer and longer line. It is of the essence of number, of line, and of any whole whatsoever to be bounded. Consequently, even if the world were infinite in magnitude, it would not be one whole, nor could God be imagined to be the soul of the world, as certain ancient authors hold, not only because he is the cause of the world, but also because such a world would not be one body, nor could it be regarded as an animal, and so it would have only a verbal unity. It is therefore a form of shorthand when we say "one" where there are more things than can be comprehended in one specifiable whole, and when we describe as a magnitude something that does not have its properties. For just as it cannot be said of an infinite number whether it is even or odd, so it cannot be said of an infinite line whether it is commensurable or incommensurable with a given line; and so these are simply improper ways of speaking of infinity, as though of one magnititude, which are based on some analogy, but which cannot be upheld when examined more carefully. Only absolute and indivisible infinity has a true unity, namely, God. (A II 4, 427; DesB, 31–33)

Leibniz's rejection of infinite numbers is not a stand-alone claim but one that aligns with and is supported by his broader metaphysical commitments. In Leibniz's philosophical system, the rejection of infinite number is connected to his theology, where true infinity belongs only to God—understood not as a quantitative totality, but as a qualitatively simple and maximal being—against which all other uses of the concept of infinity must be measured and found wanting. What cannot be unified cannot be counted. What lacks unity cannot be a number, cannot be a substance, and cannot be a soul-bearing entity. Only God is one and infinite in the fullest sense—simple, maximal, and prior. Everything else is an expression, a limitation, a reflection. Even when the created world shows order, complexity[35], or convergence, it never achieves the absolute unity that defines divinity.

[35] This selective reflection of divine perfection in creation is not arbitrary. As Leibniz explains, not all possible beings are compossible—that is, not all can exist together in the same world. Although God contains all possibilities, the world reflects only those perfections that can co-exist under a single, coherent order. According to one interpretation, compossibility is a matter of logical consistency: no two concepts in a possible world can contradict one another. But on a stronger reading, favoured by Donald Rutherford, compossibility also includes cosmological constraints. A world is not merely a logically consistent set of complete concepts, but a totality structured by spatiotemporal and causal relations. On this view, God's creative act involves selecting, from an infinite range of possible worlds, the one that exhibits the greatest coherence and unity, not through enumeration, but through structural order. The fact that the created world is quantitatively infinite but metaphysically limited is thus a consequence of its modal structure: it is the most ordered, unified system among the possibilities God can instantiate. See (Rutherford 2015, 72-75).

CONCLUSION

Leibniz's rejection of infinite numbers emerges not as a mathematical blind spot but as a position shaped by his broader metaphysical and theological commitments. Across this thesis, we have seen that the impossibility of infinite number in his system rests on three mutually reinforcing pillars: mereological nihilism, conceptualism about quantity, and the qualitative infinity of God. Together, these show that the exclusion of infinite number is not an isolated stance, but a reflection of Leibniz's underlying view that being requires unity, and that unity cannot arise from plurality.

In Chapter 1, I discussed how Leibniz's mereology excludes infinite aggregates from the category of real being. Since only true unities—those that are indivisible and simple—count as substances, and since infinite aggregates (as well as finite ones) cannot form unities, it follows that infinite wholes do not exist. Aggregates, in Leibniz's view, are nothing over and above the entities they contain; they are not beings but logical or linguistic constructions. The perception of unity in an aggregate lie in the observer, not in the thing itself. Aggregates, whether finite or infinite, have no metaphysical surplus over their constituents and therefore cannot ground number. From this perspective, Leibniz's nominalism about collections supports a deeper metaphysical thesis: what cannot be unified cannot be counted.

Chapter 2 examined the conceptual nature of quantity in Leibniz's thought. I reconstructed his view that quantity arises from mental comparison within unified wholes. Drawing on Schechtman's analysis, I contrasted this with the Aristotelian–Lockean tradition, in which quantity is defined by addition, order, and parthood. For Leibniz, quantities are not real features of the world but ideal expressions, and numbers are abstractions grounded in unity. An infinite number would require an infinite whole—but such a thing is incoherent, since infinite aggregates lack the determinacy required to support quantitative abstraction. Leibniz allows talk of the infinite only in a syncategorematic sense—that is, as a way of speaking about indefinite iteration or unbounded increase, never as a completed magnitude or totality. Here I also discussed why infinite wholes have a lower conceptual status then finite wholes.

Chapter 3 turned to the one context in which Leibniz accepts a "true infinite": the case of God. Unlike an infinite multitude, God's infinity is not additive or extensive, but qualitative. Drawing on Schechtman's account of the qualitative infinite, I identified three key features of divine infinity in Leibniz's theology: simplicity, maximality, and ontological priority. God contains all perfections, not by addition or enumeration, but as a unified whole that transcends all categories. In calling God the "hypercategorematic infinite," Leibniz signals that divine infinity exceeds the limits of categorical thinking altogether. This also grounds his metaphysical dualism: finite beings reflect divine perfections only partially, by way of limitation. The absolute and indivisible belongs to God alone; the finite is always a bounded approximation.

Leibniz's rejection of infinite number thus reveals the deep unity and economy of his philosophical system. To count is to unify, and only what is truly one can be counted. Infinite multitudes lack unity; they are never beings, never quantities, and never numbers. What appears as a denial of mathematical possibility is in fact an affirmation of metaphysical coherence. The infinite can be spoken of, but not counted. The real can be multiplied, but only if it is first made one. In this framework, number is not a primitive, but a dependent abstraction—and infinity, properly speaking, belongs only to God.

REFERENCES

In quoting primary sources, I refer to both the original texts and their English translations. For most original texts, I use the standard *Akademie-Ausgabe* (the edition published by the German Academy of Sciences), cited by series, volume, and page number. In addition, I make use of a relatively unknown manuscript containing Leibniz's writings on the metaphysical foundations of the infinite from the year 1696. These writings are forthcoming with Oxford University Press under the title *Leibniz on the Metaphysics of the Infinite*, edited and translated by Richard Arthur and Osvaldo Ottaviani. As this material is not yet included in the *Akademie-Ausgabe*, I was, with the kind permission of the editors, granted early access to a proofread version of the relevant section, which includes both the original Latin text and the English translation. I refer to this material under the title *Towards a Science of the Infinite*, citing page numbers as they appear in the current proof version (with the caveat that pagination may change in the final publication).

The primary sources and the English translations are given by the following abbreviations: A = Leibniz. *Sämtliche Schriften und Briefe*. ed. Deutsche Akademie der Wissenschaften; G = *Die philosophischen Schriften von Gottfried Wilhelm Leibniz*. ed. C. I. Gerhardt; NE = *New Essays on Human Understanding*. trans. Peter Remnant and Jonathan Bennett. DesB = *The Leibniz–Des Bosses Correspondence.* ed. and trans. Brandon C. Look and Donald Rutherford; Ma = *The Leibniz–Arnauld Correspondence*, ed. and trans. H. T. Mason; DeV = *The Leibniz–De Volder Correspondence*. trans. Paul Lodge; ToC = *The Labyrinth of the Continuum: Writings on the Cosntinuum Problem, 1672–1686*. ed. and trans. Richard Arthur; C = *Philosophical Papers and Letters*, ed. and trans. Leroy E. Loemker. DNS = Galileo Galieli. *Dialogues Concerning Two New Sciences*. trans. Henry Crew and Alfonso de Salvio.

With regard to the secondary literature, I also draw on unpublished material that will appear in the forthcoming book *The Ontic Infinite* by Anat Schechtman. Professor Schechtman kindly granted me permission to cite this material under the title of her forthcoming publication.

Primary Sources

Die philosophischen Schriften von Gottfried Wilhelm Leibniz. ed. C. I. Gerhardt. Hildesheim: Olms, 2010.

Sämtliche Schriften und Briefe, ed. Deutsche Akademie der Wissenschaften. Darmstadt/Leipzig/Berlin: Akademie Verlag, 1923–

Translations of Primary Sources

Leibniz on the Metaphysics of the Infinite (forthcoming), eds. and trans. Richard Arthur and Osvaldo Ottaviani. Oxford: Oxford University Press, 2025. (*Towards a Science of The Infinite*)

New Essays on Human Understanding. trans. Peter Remnant and Johnatan Bennett. Cambridge: Cambridge University Press, 1996.

Philosophical Papers and Letters. ed. and trans. Leroy E. Loemker. 2nd ed. Dordrecht–Boston: D. Reidel Publishing Company, 1969.

The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672–1686. ed. and trans. Richard Arthur. New Haven: Yale University Press, 2013.

The Leibniz–Arnauld Correspondence, ed. and trans. H. T. Mason. Manchester: Manchester University Press, 1967.

The Leibniz–Des Bosses Correspondence. eds. and trans. Brandon C. Look and Donald Rutherford. New Haven: Yale University Press, 2007.

The Leibniz–De Volder Correspondence: With Selections from the Correspondence Between Leibniz and Johann Bernoulli. trans. Paul Lodge. New Haven: Yale University Press, 2013.

Galilei, Galileo. *Dialogues Concerning Two New Sciences*. trans. Henry Crew and Alfonso de Salvio. New York: Macmillan, 1914. Reprinted by Liberty Fund, 2002.

Secondary Sources

Adams, Robert Merihew. 1994. *Leibniz: Determinist, Theist, Idealist.* New York: Oxford University Press.

Adams, Robert Merrihew. 2007. "The Priority of the Perfect in the Philosophical Theology of the Continental Rationalists." Edited by Michael Ayers. *Rationalism, Platonism, and*

God: A Symposium on Early Modern Philosophy. London: British Academy Scholarship Online. 91-116.

Antognazza, Maria Rosa. 2016. *Leibniz: A Very Short Introduction.* Oxford: Oxford University Press.

Antognazza, Maria Rosa. 2024. “Leibniz's Opposition to Monism.” *British Journal for the History of Philosophy* 32 (3): 666-686.

Antognazza, Maria Rosa. 2015. “The Hypercategorematic Infinite.” *Leibniz Review* 25: 5-30.

Arthur, Richard. 1999. “Infinite Number and the World Soul; in Defence of Carlin and Leibniz.” *The Leibniz Review* 9: 105-116.

Arthur, Richard. 2014. *Leibniz.* Malden: Polity.

Arthur, Richard. 2001. “Leibniz on Infinite Number, Infinite Wholes, and the Whole World: A Reply to Gregory Brown.” *The Leibniz Review* 11: 103-116.

Arthur, Richard. 2018. *Monads, Composition, and Force.* Oxford: Oxford University Press.

Arthur, Richard. 2011. “Presupposition, Aggregation, and Leibniz's Argument for a Plurality of Substance.” *The Leibniz Review* 21: 91-115.

Blanc, Jill Le. 1993. “Infinity in Theology and Mathematics.” *Religious Studies* 29 (1): 51-62.

Brown, Gregory. 2005. “Leibniz's Mathematical Argument Against a Soul of the World.” *British Journal for the History of Philosophy* 13 (3): 449-488.

Brown, Gregory. 1998. “Who's Afraid of Infinite Numbers? Leibniz and the World Soul.” *Leibniz Society Review* 8: 113-125.

Carlin, Laurence. 1997. "Infinite Accumulations and Pantheisitc Implications: Leibniz and the Anima Mundi." *Leibniz Society Review* 7: 1-24.

Constantini, Filipo. 2023. "Composition as Identity and the Logical Roots of Leibniz's Nominalism." *Global Philosophy* 1-23.

Coudert, Allison. 1995. *Leibniz and the Kabbalah.* Dodrecht: Cluver Academic.

Hallet, Michael. 1986. *Cantorian Set Theory and Limitation of Size.* New York: Oxford University Press.

Harmer, Adam. 2014. "Leibniz on Infinite Numbers, Infinite Wholes, and Composite Substances." *British Journal for the History of Philosophy* (22): 236-259.

Harmer, Adam. 2022. "Mereological Nihilism and Simple Substance." *Res Philosophica* 99 (1): 39-65.

Levey, Samuel. 2012. "On Unity, Borrowed Reality and Multitude in Leibniz." *The Leibniz Review* 22: 97-134.

Moore, A. W. 2001. *The Infinite.* London and New York: Routledge.

Nachtomy, Ohad. 2011. "A Tale of Two Thinkers, One Meeting, and Three Degrees of Infinity: Leibniz and Spinoza (1675–8)." *British Journal for the History of Philosophy* 19 (5): 935-961.

Nachtomy, Ohad. 2019. *Living Mirriors: Infinity, Unity, and Life in Leibniz's Philosophy.* New York: Oxford University Press.

Rescher, Nicholas. 1955. "Leibniz' conception of quantity, number, and infinity." *Philosophical Review* 64 (1): 108-114.

Rutherford, Donald. 2015. “The Actual World.” In *The Oxford Handbook of Leibniz,* edited by Maria Rosa Antognazza, 65-85. Oxford: Oxford University Press.

Schechtman, Anat. 2023. “Locke's Aristotelian Theory of Quantitiy.” *Philosophy and Phenomenological Research* 107 (2): 337-356.

Schechtman, Anat. forthcomming. *The Ontic Infinite.*

Schechtman, Anat. 2019. “Three Infinities in Early Modern Philosophy.” *Mind* 128 (512): 1117-1147.