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The Unity of Space in Kant's Pre-Critical Philosophy

RESEARCH

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ABSTRACT

Much recent attention has been paid to Kant's account of the unity of space in the Critique of Pure Reason, not least because of the significant implications of that view for other key critical-period doctrines. But far less attention has been paid to the development of Kant's account of the unity of space. This paper aims to offer a systematic account of Kant's pre-critical account of the unity of space. On the view presented herein, Kant's early account of the unity of space is deeply rooted in his pre-critical cosmological views. In particular, I argue that Kant sees the unity of space as grounded in the cosmological unity of the world of substances, which is itself rooted in the divine conservation of all substances in relations of mutual causal dependence. I contend that the seeds of this view are present in the late 1740s and 1750s, but that this view receives its fullest and most complete expression in the 1770 Inaugural Dissertation. The final section of the paper considers the fate of Kant's pre-critical account of the unity of space. I contend that the theory is excluded from the Critique of Pure Reason in light of the strict epistemological strictures adopted in that text. But considerable textual evidence shows that Kant continues to aver the theory throughout the 1770s and 1780s in the looser epistemic context of his lectures. I contend, then, that this theory is not abandoned at all. Rather, like Kant's 1763 proof of the existence of God, it is epistemically demoted: it is Kant's preferred view, but one that falls short of the demanding epistemic standards of the critical philosophy.

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In the Transcendental Aesthetic, which opens the main body of the CPR, Kant claims without apparent further argument that space is such that all the parts of space are parts of a single unique spatial whole. He further claims that space is monistic: the parts of space presuppose the whole of space and can be understood only as mere limitations of such a whole. He writes:

> Space is not a discursive or, as is said, general concept of relations of things in general, but a pure intuition. For, first, one can only represent a single space, and if one speaks of many spaces, one understands by that only parts of one and the same unique space. And these parts cannot as it were precede the single all-encompassing space as its components (from which its composition would be possible), but rather are thought only **in it**. It is essentially single; the manifold in it, thus also the general concept of spaces in general, rests merely on limitations. (A 24–25/B 39)[1]

More precisely, in this passage, Kant appears to ascribe two related, but distinct, properties to space:

> **Unity:** a plurality is a unity if and only if each member of the plurality is part of a single whole.
>
> **Monism:** an individual is monistic if and only if the whole is prior to the parts.

Something that instantiates **monism** also instantiates **unity**, since insofar as a whole is prior to its parts, the parts are parts of a single whole. But **unity** does not entail **monism:** it is possible for a plurality to constitute a single whole even if the parts are intelligibly and existentially independent of the whole.

These claims of Kant's are of crucial importance to the success of his critical philosophy. His claim that space is a singular unity, in particular, is implicated in his argument for the ideality of space, and it is widely agreed to be presupposed by his account of geometric cognition. Furthermore, it plays a controversial role in §26 of his Transcendental Deduction. For this reason, the claim that space instantiates **unity** has drawn considerable attention in recent scholarship. Much—though not all—of this attention has focused on what justification, if any, Kant offers for the claim that space instantiates **unity**. One group of scholars sees the unity of space as brute fact in Kant's metaphysics: it is introduced in the Transcendental Aesthetic as a phenomenologically evident feature of space, accessed through an immediate intuition of the features of space, but not rooted in any further fact about the subject or the world. Another group of scholars, relying on Kant's discussion of spatial unity in the Deduction, sees the unity of space as ultimately owed to a synthesis—either a conceptual synthesis by the understanding via the categories, or else a figurative synthesis by the imagination that is only indirectly guided by categorial structures.

The literature on this issue has grown voluminous. Considerably less attention, however, has been paid to the development of Kant's thought on the unity of space in the distinctively cosmological context of his pre-critical writings. The primary aim of this paper is to investigate these writings and trace the development of Kant's pre-critical views on the unity of space. This investigation culminates in an interpretation of Kant's argument for the claim that space is a unity in the 1770 Inaugural Dissertation. I'll argue that Kant there understands the unity of space to be explained by the cosmological unity of the intelligible world, which is itself explained by God's conservation of intelligible substances in relations of mutual causal dependence. Thus, I'll argue that the pre-critical Kant sees the unified form of the sensible world as ultimately grounded in divine action

1 I shall cite passages from the Critique of Pure Reason according to the standard A/B pagination, where 'A' refers to the first (1781) edition of the CPR and 'B' refers to the second (1787) edition. All other references to Kant's works are cited according to the standard pagination found in the Akademie edition (Ak.), Kants gesammelte Schriften, edited by the Berlin-Brandenburg Academy of Sciences (Berlin: Walter de Gruyter, 1900–). I have employed the following abbreviations for Kant's works. CPR: Critique of Pure Reason; TE: Thoughts on the True Estimation of Living Forces; ND (Nova Dilucidatio): Principiorum Primorum Cognitionis Metaphysicae Nova Dilucidato; ID (Inaugural Dissertation): De mundi sensibilis atque intelligibilis forma et principiis; L1: Metaphysik L1; Mron.: Metaphysik Mrongovius; Dohna: Metaphysik Dohna; Vig.: Metaphysik Vigilantius. When followed by a four-digit number, 'R' refers to Kant's unpublished Reflections, which are reproduced in vols. 17 & 18 of the Akademie edition. Translations are from the Cambridge Edition of the Complete Works of Immanuel Kant, eds. Paul Guyer and Allen Wood (New York: Cambridge University Press, 1988–).

and I'll argue that this theory depends upon a cosmology that Kant begins to develop as early as 1747, which seeks to reject a broadly Leibnizian isolationist cosmology in favor of an interactionist condition upon world membership.

In the third and final section of the paper, I'll consider the fate of Kant's pre-critical account of the unity of space in the distinctive and restrictive epistemic context of Kant's critical philosophy. Nearly all will agree that the CPR's restriction of theoretical cognition and knowledge to the bounds of possible sensible experience rules out any legitimate appeal to divine action as the ultimate source of the unity of space. I will not suggest otherwise. However, I will show that Kant continued to elaborate the view he develops in the Dissertation nearly verbatim in his lectures on metaphysics even after the publication of the first edition of the CPR in 1781. This suggests that Kant does not abandon the Dissertation's account of the unity of space, but rather epistemically demotes it, much as he does with his 1763 proof of the existence of God. On this view, Kant's account of the unity of space falls short of the rigorous standard of apodictic certainty Kant requires of a priori reasoning in the CPR and thus cannot legitimately be appealed to there. But Kant's repeated invocation of it in looser epistemic contexts suggests that Kant continues to regard it as the most plausible candidate to explain a core feature of space—even if such an explanation must amount to mere belief or faith (Glaube).

I. KANT'S EARLY COSMOLOGY

In order to develop my interpretation of Kant's account of the unity of space in the Inaugural Dissertation, it is important to begin with the writings in which Kant first begins to develop the cosmological theory that forms the core of his 1770 position. Kant's early metaphysical writings are often regarded as Leibnizian. Though this is in a broad sense true, it fails to acknowledge that the centerpiece of Kant's early metaphysical position is a sustained attack on the Leibnizian cosmology.[2]

On Leibniz's view, God's act of creation involves the actualization of a set of substances each of which acts, with God's concurrence, to produce each of the states it shall be in. Accordingly, finite substances are causally isolated from one another: the hypothesis of causal interaction is not required to explain the production of any state of any finite substance. Nevertheless, finite substances stand in all of the natural regularities one would expect on the interactionist hypothesis by virtue of God's 'harmonizing' their changes in state. God is thus the author of a 'pre-established harmony' among created substances that ensures that their states are produced in ways that conform to natural laws.[3] Thus, though Leibniz's conception of a world includes causal activity, it denies that such non-divine causal activity takes place among finite substances; rather, it occurs only within such substances.[4]

2 Comparatively little has been written about Kant's pre-critical philosophy and only a narrow subset of what has been written focuses on Kant's cosmological writings. Nevertheless, I have learned a great deal from two general studies of Kant's pre-critical philosophical development: Laywine (1993) and Schönfeld (2000). Schönfeld does not address the subject matter of this paper in detail. Laywine does not take it up directly, but some of what she writes bears on my question; I shall have more to say about her view as we go on. The question of the unity of space in Kant's early writings is addressed in detail in Messina (2014), and much of what I shall say in this paper concurs with Messina's own view, though we disagree in substantial ways about Kant's ultimate account of the unity of space in 1770. Likewise, at least some of what follows concurs with the brief discussion of Kant's pre-critical account of space in Friedman (2009). I have also benefitted from discussion of Kant's pre-critical metaphysics in various other authors, especially including Ameriks (1992), Watkins (2005), Hogan (2009a) and (2013), Chignell (2009), Stang (2016), Laywine (2020), and Anderson (2015).

3 Leibniz writes: '. . . God originally created the soul (and any other real unity) in such a way that everything must arise for it from its own depths, through a perfect spontaneity relative to itself, and yet with a perfect conformity relative to external things' (1989: 143).

4 I have framed this in terms of Leibniz's pre-established harmony, which is understood as a general cosmological thesis applying to all substances. A referee points out that Kant's engagement with Leibniz's pre-established harmony must be understood in part through his engagement with the philosophy of Christian Wolff. Wolff also defends the pre-established harmony, but in most of his discussions frames it as a thesis concerning mind-body relations rather than as a general cosmological principle (see, e.g., Rational Thoughts, 2009: §§529, 534 and 536). As we shall see, the argument Kant mounts against the pre-established harmony in 1747 and 1755 seems directed at the pre-established harmony understood as a general cosmological principle: Kant appeals there to no premise that would pertain specifically only to mind-body relations. Thus, while Kant's engagement with Wolff is clearly important across a variety of dimensions, and even for his understanding of the details of the pre-established harmony, I think it's difficult to read the relevant texts as specifically aimed at a narrower Wolffian version of the doctrine. For discussion of Wolff's pre-established harmony, see Watkins (2005: chap. 1).

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It is difficult to overstate the degree to which Kant's firm rejection of the Leibnizian isolationist cosmology animates his early metaphysical and natural scientific writings. Kant's first publication—1747's Thoughts on the True Estimation of Living Forces—is an intervention in the vis viva debate that embraces a robust interactionism. There, Kant elaborates for the first time a criticism of the Leibnizian cosmology that he will repeat until the end of his career:

> One cannot say that something is part of a whole if it stands in no connection with the remaining parts (for otherwise there would be no discernible difference between an actual and an imagined union), but the world is an actually composite entity, and so a substance connected with no thing in the entire world will not belong to the world at all, except perhaps in one's thoughts, that is, it will be no part of the world. (TE, Ak., 1:22)

Kant's complaint in this passage is that the Leibnizian non-interactionist cosmology is insufficient to account for the world membership of its constituents. That is, Kant's point is that substances that bear no 'connection' to one another cannot rightly be regarded as members of the same world. As Kant makes clear in subsequent passages, the worldmaking 'connection' among substances that he envisions is a robust species of mutual causal dependence.[5]

This passage reveals that the notion of a 'world' is a technical one for Kant: a world is not merely a collection of substances, nor is it merely whatever exists. Rather, a world is a collection of substances that instantiates **unity**, that is, is such that individual substances are rightly regarded as parts of a single whole. A collection of substances instantiates **unity**, Kant holds, only in the instance that every member stands in a relation of mutual causal dependence to every other. This conception of a world will be of crucial importance in what is to come.[6]

Kant's first systematic metaphysical work is the Nova Dilucidatio of 1755.[7] The third and final part of that work is a sustained attack on the Leibnizian cosmology that incorporates and significantly expands upon the theory preliminarily articulated in 1747. In the Nova Dilucidatio, Kant rejects as unintelligible the Leibnizian thesis that substances act through an intrinsic causal principle to produce their own states and argues instead that every change of state of a substance is grounded in some other substance.[8] More importantly for our purposes, Kant goes on to offer a positive account of the unity of the created world. He defends what he terms the 'Principle of Coexistence':

> Finite substances do not, in virtue of their existence alone, stand in a relationship with each other, nor are they linked together by any interaction at all, except in so far as the common principle of their existence, namely the divine understanding, maintains them in a state of harmony in their reciprocal relations. (ND, Ak., 1:411)

Kant here presupposes a conception of substance as 'an existence which can be completely understood independently of all other substances' (ND, Ak., 1:412–13). Kant argues that the

5 See, e.g., TE, Ak.. 1:23. Kant's claim that the Leibnizian cosmology can at best reveal created substances to be an imagined, or as he sometimes says 'ideal,' unity is repeated frequently. See, e.g., ID, Ak., 2:409; L1, Ak., 28:212; and Mron., Ak., 29:851. Leibniz would, of course, object. Leibniz would argue that he can account for a genuine bond among created substances by appeal to his universal expression thesis, which contends that each substance represents, or expresses, each state of every other. While I believe Kant has good reason to reject an account of world unity in terms of representational unity—after all, Leibniz thinks the expressive capacity of each created substance extends beyond its created worldmates and includes all possible substances—I shall set this issue aside here, since my primary aim is not to adjudicate this dispute, but rather to connect Kant's conception of the unity of the world to his claim that space is a unity.

6 A referee worries that Kant's disagreement with Leibniz is merely a verbal disagreement, since we might understand Kant as simply defining a world in interactionist terms. I must disagree with this point. I think we can see Kant and Leibniz as agreeing on the definition of a world: both regard a world as a unity of substances. But they disagree on the conditions under which such a unity is in fact established. Leibniz contends that it can be established in the absence of interaction, but as the previous note shows, Kant argues that this leads to a mere 'ideal' unity.

7 My discussion here is indebted to, and broadly agrees with, Laywine (1993), esp. chap. 2, though we disagree on some small details and points of emphasis.

8 I shall avoid detailed discussion of Kant's argument for this principle here, since it will not be important for what follows. For detailed reconstructions and discussions of this argument, see Kitcher (2010: 47ff.), and Watkins (2005: 112–39).

'reciprocal relations' of interaction that unify created substances into a world are not fully grounded in the substances themselves; if they were, then the existence of one substance would entail the existence of any other substance to which it stands in causal interaction. Accordingly, causal relations among substances are owed to something other than the existence of the substances themselves. Kant concludes that it is their common cause—God—that determines the relations of reciprocal dependence that hold among substances and conserves substances in these relations.[9]

Thus, it is Kant's view in 1755 that the unity of the created world is owed to God's superaddition of relations of mutual causal dependence to independently intelligible created substances in a conceptually separable component of God's acts of creation and conservation. In the absence of divine conception and action, no multiplicity of created things could instantiate **unity**.[10]

In closing this discussion of Kant's earliest cosmological writings, it is important to note two other features of Kant's pre-critical cosmological theory. First, in both 1747 and in 1755, Kant regards the unity of the created world as contingent. That is to say, Kant maintains that God might have omitted causal relations among created substances altogether, or else have created multiple sets of substances such that members of each set constitute a world of causally interacting substances, but that no members of distinct sets interact with one another. 'It is really possible,' Kant says, 'even in the properly metaphysical sense, that God may have created many millions of worlds . . .' (TE, Ak., 1:22). Were God to have so acted, God would have created 'a world banished beyond the limits of the world, of which we are parts, that is to say, they would constitute a solitary world' (ND, Ak., 1:414). Thus, in his earliest writings, Kant conceives of the unity of the created world as a contingent truth rooted in the contingency of divine conception and action.

Second, and for precisely this reason, Kant's early cosmological writings deny that space necessarily instantiates **unity**. In these works, Kant adopts a quasi-relationalist view according to which space is grounded in facts about created substances. Specifically, Kant holds that 'the concept of space is constituted by the interconnected actions of substances,' and thus that 'a certain connection of their determinations . . . produce[s] place, position, and space . . .' (ND, Ak., 1:414–15).[11] On this view, space and spatial relations are regarded as dependent upon the existence of substances and the exercise of their causal powers. This dependence of space on the existence of substances is a quasi-Leibnizian conception of space as an order of co-existence,[12] though Kant departs from Leibniz in supposing that space also depends upon causal relations holding among existing substances. Importantly, if space depends upon causal relations among created substances, and it is possible for there to be multiple non-overlapping sets of causally related substances, then it is possible for there to be multiple spaces such that none is conceived as part of another, and thus such that they are not conceived as parts of a single spatial whole, that is, as instantiating **unity**.

So much for Kant's earliest positions on cosmology and the nature of space. As we shall see, his views will change in important ways. However, I shall argue that the basic interactive conception of the unity of the world plays a significant role in Kant's conception of the unity of space going forward.

9 Watkins sees the Principle of Coexistence as primarily aimed at undermining Crusius's conception of an existential ground (2005: 140ff.). I have presented the Principle of Coexistence as part of a broadly anti-Leibnizian argument in Kant. While I won't deny that Crusius may also have been a target, it is difficult for me to read §3 of the Nova Dilucidatio, and its insistence on establishing an interactionist conception of world membership, as not taking Leibniz as its primary target. Cf. Crusius ([1745] 2009), in Watkins (2009), for his conception of an existential ground.

10 Kant thus seems to think that causal relations can be mereological relations in the instance that the composed individual is a world. But this does not mean that we must read Kant as holding that all mereological relations are causal relations or that all causal relations are mereological relations. Indeed, I think he would deny both such claims across his corpus. I thank a referee for pressing me to clarify this point.

11 Cf. TE, Ak. 1:23ff: 'It is easy to show that there would be no space and no extension if substances had no force to act external to themselves. For without this force there is no connection, without connection, no order, and, finally, without order, no space.'

12 Leibniz's relationalist conception of space, according to which substances are prior to the relations—including spatial relations—in which they stand, is evident in many texts. Perhaps his clearest statement of it is in his correspondence with Samuel Clarke, who represented Newton's absolutist position (Leibniz and Clarke 2000: 14).

II. THE UNITY OF SPACE IN THE INAUGURAL DISSERTATION

The Inaugural Dissertation of 1770 is a key text for understanding the development of Kant's critical philosophy and, in some instances, for interpreting Kant's mature critical doctrines. It stands squarely between Kant's early dogmatic metaphysics and his mature critical epistemology and thus represents a key turning point in Kant's philosophy. It includes the first appearance of Kant's distinction between the sensible and intelligible worlds, and Kant argues there for the first time that space and time are pure intuitions and thus merely 'subjective and ideal,' and so apply only to 'phenomena' (ID, Ak., 2:403). Nevertheless, in the Dissertation, Kant remains committed to human cognition of the intelligible world—that is, cognition of noumena—purely on the basis of the understanding (or 'intelligence' as he often calls it there) (ID, Ak., 2:392).

The aim of this section is to offer a detailed interpretation of Kant's argument for the claim that space is a singular unity in the Dissertation. I shall argue that the view Kant develops and presents in the Dissertation is deeply informed by his early cosmological views, detailed above. But Kant's position on the status of space has undergone a radical shift by the time he wrote the Dissertation. In many respects, it is very close to the theory of space Kant presents in the CPR 11 years later. As such, Kant's account of the unity of space in the Dissertation is an important—but nearly universally overlooked—case study in the development of Kant's mature metaphysical views. For, I shall argue, even in a text in which Kant makes the distinction between sensibility and the intellect, and in which he regards space and time as mere forms of sensibility, he nevertheless seeks to explain key features of the sensible world by appeal to the fundamental structure of the intelligible world—a strategy most interpreters take Kant to vehemently reject by 1781.

I'll begin by reviewing Kant's remarks on the unity of the world and the unity of space in the Dissertation and I'll outline what I take to be the constraints on an appropriate interpretation of these texts. In the second part of this section, I'll present an interpretation of these texts.

II.1 COSMOLOGICAL AND SPATIAL UNITY

The Dissertation retains the interactive intelligible cosmology and the claim that the unity of the world consists in relations of mutual causal dependence first articulated in Living Forces and the Nova Dilucidatio (ID, Ak., 2:407). Furthermore, Kant continues to hold that the mutual interaction of intelligible substances—and thus the unity of the created world—is not entailed by the existence of those substances: 'if a plurality of substances is given, the principle of a possible interaction between them does not consist in their existence alone' (ID, Ak., 2:407–8). This is a virtual repetition of the Principle of Coexistence, and in the Dissertation, Kant likewise concludes that the unity of the created world is owed to a divine superaddition and conservation of relations of mutual dependence.[13]

Of special importance for our purposes is Kant's significant departure from his early-career cosmology on one point: in the Dissertation, Kant denies the metaphysical possibility of multiple created worlds. He writes:

> . . . [A] number of actual worlds existing outside one another is not impossible simply in virtue of the concept itself. . . . It is impossible in virtue of this condition alone: that only one necessary cause of all things should exist. If, indeed, a number of necessary causes were to be admitted, then it would be possible for there to be a number of worlds, in the strictest metaphysical sense, existing outside each other. (ID, Ak., 2:408)

Here, Kant asserts the impossibility of a multiplicity of worlds on the grounds that the necessary being is unique: he denies that there can be multiple distinct sets of substances, each of which instantiates relations of mutual causal dependence only with members of its own set because all created substances are caused by the same unique being.

13 'Therefore, the UNITY in the conjunction of substances in the universe is a corollary of the dependence of all substances on one being' (ID, Ak., 2:408).

Kant claims that the impossibility of a multiplicity of worlds is not a conceptual impossibility. His point is that since the concept of a world contains no reference to a unique cause, the concept of a world does not logically entail its uniqueness. Accordingly, a multiplicity of worlds is logically possible.[14] However, Kant claims that when we consider the ground of the existence of the world, we posit a unique necessary being and find that the cause is incompatible with a multiplicity of worlds. Thus, a multiplicity of worlds is, in Kant's sense of 'world,' metaphysically impossible. This is a rebuke of his early position, discussed above, that multiple actual worlds are possible 'in the properly metaphysical sense.'

The Dissertation permits the possibility that God does not create a world at all—either by creating nothing or else by creating a multiplicity of individuals without putting them into any relation at all. This much is underwritten by Kant's continued acceptance of the Principle of Coexistence in the Dissertation and is continuous with Kant's 1755 cosmology. But Kant departs from his early cosmology by claiming that if God elects to unify any created substances, then he unifies all created substances.[15] In other words, Kant's view in the Dissertation is that God creates at most one world—if he puts any two substances into mutual interaction, then he puts all created substances into mutual interaction.[16] Kant does not reassert the Principle of Succession in the Dissertation and he claims that he has not 'demonstrated' the reality of interaction. Nevertheless, he claims that an interactionist model 'has nonetheless been rendered fully acceptable for other reasons' (ID, Ak., 2:409). Thus, Kant's position in the Dissertation is that existing intelligible substances do indeed constitute a single, unified world.

The Dissertation also contains Kant's first detailed assertion of his view that space, qua form of sensible receptivity, is a unity, and thus that the sensible world is a unity. And Kant links this theory to the modified cosmology of created substance we have just set out. He writes:

> The principle of the form of the universe is that which contains the ground of the connection, in virtue of which all substances and their states belong to the same whole which is called a world. The principle of the form of the sensible world is that which contains the ground of the universal connection of all things, in so far as they are phenomena. The form of the intelligible world recognizes an objective principle, that is to say, some cause in virtue of which there is a combining together of the things which exist in themselves. But the world, in so far as it is regarded as phenomenon, that is to say, the world in relation to the sensibility of the human mind, does not recognize any other principle of form than a subjective one, that is to say, a fixed law of the mind, in virtue of which it is necessary that all the things which can be objects of the senses (through the qualities of those objects) are seen as necessarily belonging to the same whole. (ID, Ak., 2:398, emphasis in original)

Kant's claims about the intelligible world are by now familiar: the unity of the intelligible world consists in the reciprocal causal interaction of all finite existents, and the unity of the intelligible world is explained by God's creation and conservation of substances in such relations.

Kant asserts a parallel set of claims about the sensible world. For, first, he claims that the sensible world is a unity in the sense that 'the things which can be objects of the senses . . . are seen as necessarily belonging to the same whole.' Thus, Kant asserts without apparent argument that the sensible world instantiates **unity**. Moreover, this unity is explained by a 'principle of form' that is 'subjective' and Kant takes this to be a 'fixed law of the mind.' The story for the sensible

14 Kant says that 'no necessary substance is connected with the world unless it is connected with it in the way in which a cause is connected with what is caused' (ID, Ak., 2:408). Kant means here to claim that the relation between a necessary substance and the world is not a conceptual—or, to use his mature terminology, analytic—connection but rather a non-logical causal connection.

15 I thank a referee for pressing me to clarify the precise way in which the Dissertation departs from the Nova Dilucidatio.

16 Kant's claim that the uniqueness of God entails the uniqueness of the created world is worth investigation in its own right, though because the focus of this paper is the unity of space, and because of the complexity of this issue and the relative paucity of discussion of it in Kant's own corpus, I shall leave a detailed account of this issue for future work. See Metaphysik L1, Ak., 28:215 and 28:212.

world is thus parallel: the unity of the sensible world consists in having a form that suffices for all phenomena to constitute a single whole, and this is explained by appeal to some feature of the subject—a 'fixed law'—that functions analogously to God's role in unifying intelligible substances.

In light of this parallel between Kant's accounts of intelligible and sensible unity, what is Kant's explanation of his claim that the spatial form of the sensible world is a unity? His immediate answer is that it is explained by appeal to a 'fixed law of the mind.' But is this susceptible to further explanation? One option would be to take this to be an admission of the bruteness of the unity of space: subjects simply are such that all perceivable objects are necessarily perceived as existing within a single spatial whole.[17] Another option would be to suppose that the appropriate explanation ineliminably appeals to some intellectual act or operation by the perceiving subject. A third option would be to posit a divinely imposed harmony between intelligible and sensible worlds.[18] Each of these is prima facie consistent with the texts considered so far. However, I shall argue that other texts speak in favor of a fourth interpretation, one according to which the unity of the sensible world is grounded in, and results from, the unity of the intelligible world by virtue of the perceiving subject's membership in that causally unified world. Going forward, I shall refer to this interpretation as the Cosmological Interpretation.

II.2 THE COSMOLOGICAL INTERPRETATION

Consider another passage from the Dissertation:

> Accordingly, the following question, which can only be solved by the understanding, remains untouched, namely: what is the principle upon which this relation of all substances itself rests, and which, when seen intuitively, is called space? The hinge, then, upon which the question about the principle of the form of the intelligible world is this: to explain how it is possible that a plurality of substances should be in mutual interaction with each other, and in this way belongs to the same whole, which is called a world. (ID, Ak., 2:407)

I note this passage primarily because Kant here indicates a very tight relation between the unity of space and the unity of intelligible substances: he claims that space is 'the principle upon which this relation of all substances itself rests . . . seen intuitively.' That is, Kant's claim appears to be that space itself is rooted in the unified structure of intelligible reality, that space is a kind of expression or isomorphism of the singularity of the intelligible world. This passage, then, appears to assert a metaphysical relation between the unified form of the intelligible world and the form of the sensible world.[19]

17 This would be a version of what Messina (2014) calls 'the Brute Given Reading,' which I will discuss in further detail below.

18 I thank Eric Watkins for raising this as a possible reading of Kant's account of the unity of space in the Dissertation. On this reading, Kant's appeal to a 'fixed law of the mind' is an appeal to a divinely imposed constraint that ensures a representational unity in light of the objective unity of the created world. While it is true that this reading is consistent with the texts cited so far, I think this is not a promising interpretive option. For one, this interpretation will suffer from texts, to be discussed, in which Kant clearly aims to explain the unity of space and the sensible world by appeal to the unity of the intelligible world—something a divine harmony reading would have to deny. Second, Kant was a lifelong enemy of appeals to divinely imposed harmony in order to explain features of the natural world. We have already seen his systematic rejection of the Leibnizian pre-established harmony in his pre-critical works. This antipathy toward appeals to divine harmony is maintained in later texts, where Kant specifically inveighs against Crusius's invocation of a kind of divinely implanted psychological constraint on cognition in order to explain human cognition of metaphysical necessities. See Dreams, Ak., 2:342 and CPR, B 167. It would strain credulity to suppose that Kant himself in fact offers an explanation of a crucial component of his metaphysical system that depends upon a divinely imposed harmony.

19 Herein lies a point of significant disagreement with Laywine. In her early treatment of these issues, Laywine contends that when it comes to the question 'How is it in fact possible for us to represent actual objects of sensation as parts related to one another in a single whole or in some kind of common, spatio-temporal framework?' Kant 'apparently has nothing to say' (Laywine 1993: 128). For Laywine, Kant's 'story about the sensible world is radically incomplete even on its own terms' (1993: 126). However, in her later work, Laywine (2000) contends that Kant does have something to say about the unity of the sensible world in the Dissertation. Her view there is that 'space and time, the conditions of sensibility, alone determine the form of the sensible world, which will allow no other principle' (2003: 447). On this view, Kant's explanation of the unity of the sensible world is given entirely by appeal to a 'subjective law of the soul,' i.e., the 'fixed law of the mind.' While I cannot do justice to the complexity of Laywine's account here, it should be evident that my own view diverges from hers in a substantial way: I think Kant seeks to explain the unity of the sensible world in part by appeal to the unity of the intelligible world, and I shall say how I understand this argument to work presently. It is possible that our disagreement on this point is owed to differing views about just how autonomous Kant understood the sensible world to be from the intelligible world in 1770.

In another passage, Kant writes:

> . . . [T]he human mind is only affected by external things, and the world is only exposed to its view, lying open before it to infinity, in so far as the mind itself, together with all other things, is sustained by the same infinite force of one being. Hence, the mind only senses external things in virtue of the presence of the same common sustaining cause. Accordingly, space, which is the sensitively cognized universal and necessary condition of the co-presence of all things, can be called PHENOMENAL OMNIPRESENCE. (ID, Ak., 2:409)

This passage explicitly connects the unity of the intelligible world, and the divine condition upon it, with our sensible capacities. Kant claims that sensible affection itself is rooted in the divine conservation of all created things, which is itself, as we have seen, the key metaphysical condition upon the unity of created substances. He goes on to infer ('Accordingly') that space is itself a necessary condition of the 'co-presence' of phenomena and is a cognition of the worldmaking divine conservation.

These passages reveal that in the Dissertation, Kant regards the unity of space as grounded in more fundamental, non-spatial facts about intelligible reality: space instantiates **unity** because the world instantiates **unity**, and the world instantiates **unity** because God creates and conserves substances in relations of mutual dependence.[20] Still, these passages do not provide, on their own, a substantial argument for the view that the unity of space is explained by the unity of the intelligible world. Fortunately, these passages put in the context of Kant's broader theory of sensibility in the Dissertation, suffice to reveal a relatively straightforward argument for this view.

The Dissertation contains the first detailed accounting of Kant's signature theory that space is an a priori form of sensibility, a theory that plays a key role in the CPR and the transcendental idealist metaphysics developed therein. The Dissertation also records Kant's commitment to the position that sensibility is a passive, and thus receptive, faculty, which puts the subject in relation to an object only in virtue of the object's affection of the subject. In the Dissertation, Kant claims that 'objects do not strike the senses in virtue of their form or aspect,' but instead only 'through the qualities of those objects'[21] (ID, Ak., 2:393). It is Kant's commitment to a causal theory of sensible representation that crucially links Kant's theory of space in the Dissertation to the intelligible cosmology detailed above.

Close attention to the details of these theories reveals the link: in light of Kant's cosmological views, human subjects are themselves receptive only to something that is a unity. This is because Kant's theory of sensible representation holds that sensibility is a capacity for causal receptivity, and Kant's cosmological theory holds that each substance in a world instantiates a relation of causal dependence to all other such substances, which are its worldmates. Since Kant regards the form of our causal receptivity as a representational form, he concludes that that representational form is itself a unity: we represent the spatial form of the world as unified because the spatial form of the world is the way in which we represent something that is itself a unity.

Let's unpack this argument. It contains three crucial elements. The first is the metaphysical claim human subjects are necessarily causally receptive only to something that is itself a unity, that is, human subjects are necessarily receptive only to a world. To see why, recall that in the Dissertation Kant holds that created intelligible substances instantiate **unity:** the singularity of the creating and conserving cause of the world entails that created substances constitute a unity if they interact at all (which they do). Accordingly, each created substance necessarily stands in a relation of mutual causal dependence to all other created substances and they together constitute a world. As such, no human subject can be causally receptive only to a subset of other created existents. And it follows from this that each human subject is necessarily receptive to all and only other created existents.

20 Kant's claim that space is a phenomenal expression of a divinely conserved substantial unity is frequently repeated in other cosmological writings from the 1770s, as we shall see in the next section.

21 Compare with the very first sentences of the main body of the CPR: 'In whatever way and through whatever means a cognition may relate to objects, that through which it relates immediately to them, and at which all thought as a means is directed as an end, is intuition. This, however, takes place only insofar as the object is given to us; but this in turn, is possible only if it affects the mind in a certain way' (A 19/B 33). See Hogan (2009c) for detailed discussion of Kant's early commitment to a causal theory of sensible representation.

The second element of the argument is Kant's claim in the Dissertation—and one he retains for the rest of his career—that sensibility, which is a representational capacity, is the human capacity for causal receptivity. That is to say, it is Kant's view in the Dissertation and in the CPR that the way in which human subjects are causally receptive is through sensibility rather than through some other faculty or capacity.[22] This claim may well be brute within Kant's own philosophical system. In the CPR, Kant simply defines sensibility as 'the capacity (receptivity) to acquire representations through the way in which we are affected by objects . . .' (A 19/B 33). And in the Dissertation, Kant says that 'sensibility is the receptivity of a subject in virtue of which it is possible for the subject's own representative state to be affected in a definite way by the presence of some object' (Ak., 2:392). Kant seems to offer no further explication of sensibility and no argument for why the human capacity for receptivity is sensible rather than non-sensible. As such, it is Kant's view that our receptivity to the world—the effects of the unified world on the human subject—are to be understood as representations.

The third, and final, component of the argument is simply Kant's view that space is the representational form of our causal receptivity to the world. Space is not itself an effect of the world on our sensibility—it 'cannot be derived from the senses'—but rather is 'presupposed' by empirical sensible representation (Ak., 2:402; cf. A 20/B 34). As such, space is a form imposed by the subject upon that which causally affects it and which the subject represents empirically.

With these three claims in place, we can see more clearly why Kant would take them to result in the claim that space is itself a unity. Because we are causally receptive only to a unified world, and because space is our way of representing that world, we can understand Kant as claiming that space is a unity because it is a way of representing something that is itself a unity. This account of the unity of space is strongly suggested by the passage a Ak., 2:407 which we discussed earlier. There Kant asks 'what is the principle upon which this relation of all substances itself rests, and which, when seen intuitively, is called space?' This passage implies that space just is a subjective representation of the objective 'relation of all substances,' and as such inherits the property of **unity** from them.[23]

In the end, then, the passages we have considered suggest that Kant ultimately sees the unity of space as in part grounded in the unity of God by way of the unity of God's creation. Specifically, they suggest that the unity of space is rooted in the unity of the world because space is simply our way of representing the world, which is itself a unity. And the unity of the world is, of course, rooted in God's creation and conservation of created substances in bonds of mutual causal dependence, which itself requires that God himself be a singular unity.

In an earlier passage, Kant says that the unity of the sensible world (and thus space) is explained by a 'subjective' principle, which he identifies as a 'fixed law of the mind.' This might suggest that Kant sees the unity of space as requiring a purely subjective explanation and thus that an

22 One might object: couldn't Kant hold that sensible receptivity is merely among the ways in which one created substance is receptive to others? That is, mightn't a substance be affected by another in such a way that it doesn't produce a sensible representation, but rather some other sort of effect? I think the answer must be negative. Kant has already adopted the ideality of space and time in the Dissertation. Intelligible substances, then, must be non-spatiotemporal. Barring the claim that created beings could have a nature that is neither physical nor mental, one should conclude that the nature of intelligible substances is mental and thus that all effects on that substance by another are representational in nature. Of course, the assumption that the nature of finite creatures is exhausted by the mental and the physical is itself a controversial assumption. There seems to be no conceptual barrier to supposing that finite creatures have natures that are neither physical nor mental (see, e.g., Spinoza, (1677/1992), E1p8). I know of no unambiguous Kantian text in which Kant himself defends the assumption that finite creatures could have a non-physical, non-mental nature. Yet this assumption seems to be widely held in the period.

23 As we have seen, Kant claims that the intelligible world is a unity in virtue of instantiating relations of mutual causal dependence among all created substances. But one might object that the affection relation, which is required for sensible representations, is a one-way causal relation. If this is right, then receptivity does not require membership in a unified world, and thus the Cosmological Reading would fail. However, I think this objection must fail. First, in all extant relevant texts, Kant discusses exactly one kind of causal relation holding among finite existents: that of mutual causal dependence. Furthermore, the distinction between one-way and two-way causal relations—between what Kant calls 'causal dependence' and 'causal interaction'—is well-ensconced in Kant's philosophy (see, e.g., A 80/B 106 and the entirety of the Analogies of Experience at A 189/B 232–A 219/B 265). Furthermore, Kant has a powerful reason to deny that affection is a one-way causal relation: Kant holds that God affects created beings, but not vice versa. If affection were a one-way causal relation, then Kant would be dangerously close to endorsing a theory according to which human subjects were sensibly affected by God. But Kant explicitly denies in many texts that finite substances bear the same sorts of causal relations to one another as they do to God (ID, Ak., 2:408; L1, Ak., 28:196; L1, Ak., 28:212). Thus, I think this objection would fare poorly from an interpretive perspective.

explanation in terms of God's conservation of a unified intelligible world, of which the receptive subject is a member, is a poor fit. However, the Cosmological Interpretation can readily account for this passage once it is noticed that we can regard the 'fixed law of the mind' can itself be rooted in something non-subjective. In other words, we can regard Kant as explaining a fact about the subject's sensible receptivity by appeal to the subject's own membership in a divinely conserved and unified world of substances, which causally affects sensibility.[24]

According to the Cosmological Interpretation, then, in the Dissertation there is a close link between Kant's intelligible cosmology and his repeated claim that space, qua form of sensible receptivity, instantiates **unity**. The Cosmological Interpretation explains Kant's repeated claims that space is 'the principle upon which this relation of all substances itself rests . . . seen intuitively' and that space is a reflection of the divine omnipresence: Kant's linking of space to the divine conditions of intelligible cosmological unity is rendered coherent on this interpretation.[25]

This is an intriguing result. The Dissertation's account of sensibility and of space and time is generally taken to be a close ancestor of the CPR's account. Indeed, a good deal of the text of the Aesthetic closely mirrors §3 of the Dissertation. Despite Kant's dogmatic intelligible epistemology in that text, it is natural to read Kant's views about the sensible world as a very close ancestor to his critical views, where it is natural to see Kant's theory of the sensible world as largely explanatorily divorced from consideration of the noumenal. But if the Cosmological Interpretation is right, Kant's theory of space and the sensible world in 1770 owes a great debt to his earliest cosmological writings, in which Kant sought to explain key aspects of the physical world by appeal to an intelligible interactionist cosmology, and any such divorce remains a considerable way off.[26]

III. THE FATE OF KANT'S PRE-CRITICAL ACCOUNT OF THE UNITY OF SPACE

On the Cosmological Interpretation of Kant's account of the unity of space in the Dissertation, Kant seeks to explain a key feature of space by appeal to the divinely imposed and maintained unity of the intelligible world. As we have noted, this account presupposes the immodest epistemology

24 There is no doubt that Kant's later writings are concerned with an additional kind of unity of the sensible world, one that is afforded to it by virtue of sensible things standing in mutual causal relations with one another. Indeed, Kant was keenly concerned to develop such a view later in the 1770s and 1780s. This project finds clear expression in the Duisburg Nachlaß and it culminates in the theory of material nature Kant develops in the Analogies of Experience in the CPR and in the Metaphysical Foundations of Natural Science. However, I find little evidence in the Dissertation that Kant understood the unity of the sensible world to be a causal unity rather than merely a spatial unity: in the passages we have examined, Kant's clear emphasis is on the unity afforded to the sensible world by its spatial form—which, I have argued, is grounded in the causal unity of the intelligible world. Of course, Kant does hold a dynamical conception of matter in the Dissertation, and he certainly understands sensible things to instantiate relations of mutual dependence (see, e.g., ID, Ak., 2:414). But in his discussions of the unity of the sensible world in the Dissertation, his emphasis is clearly on the explanatory role of space. This comports with Kant's repeated claim the Dissertation that space is insufficient for causal relations: 'space contains the conditions of possible reciprocal actions only in respect of matter' (ID, Ak., 2:414). Kant's point is that space is a necessary condition upon interactive relations among sensible things, but it is not sufficient. I thank an anonymous referee for pressing me to weigh in on this issue here. Cf. Laywine (2003) for a discussion of the relevant conception of nature in Kant's critical philosophy.

25 Does it follow from this view that space is a representation of intelligible causal relations? I don't think so. Kant's view is that space is an expression of the oneness of the intelligible world because it is explained by the conditions of that oneness. But he needn't hold that it accurately represents the particular facts that constitute that unity, for he might hold that the content of the representation of space is incompatible with the structure of the intelligible world in other respects. In other words, it is open to Kant to contend that though the unity of space is the result of the unity of the intelligible world, the way in which space unifies the sensible world is distinct. Indeed, Kant contends that space is monistic: that it is such that the whole precedes the parts (ID, Ak., 2:402). But Kant's views about the intelligible world preclude it from being monistic, since substances are prior to their relations, which unite them into a whole. Thus, Kant's view appears to be that though space is suited to express the conditions of oneness or unity, it doesn't follow that it is thereby an accurate representation of the structure of the intelligible world or can be analyzed into one. This is in keeping with his general denial of the Leibnizian idealism, according to which space is a 'well-founded' phenomenon insofar as it is a kind of confused representation of an objective monadic order (see, e.g., Ak. 10:133–34 and A 26/B 42). I thank an anonymous referee for suggesting I address this point.

26 The Cosmological Interpretation thus concurs with Friedman's reading, which says that 'space is . . . the phenomenal expression of this . . . system of divinely instituted relations' and that space is thus 'a secondary reality, derivative from the monads and their external relations' (Friedman 2009: 42). However, Friedman does not go into detail about the way in which space is 'derivative.' The Cosmological Interpretation aims to give a detailed accounting of precisely the way in which divinely instituted causal relations ground space. See also the introduction to Friedman (1992).

of the Dissertation, where Kant maintains that purely intellectual representations can reveal to the subject the nature of the intelligible world. However, the epistemological context of the CPR is substantially different. In the Preface to the B edition of the CPR, Kant announces one of his most important results:

> [F]rom this deduction of our faculty of cognizing a priori . . . there emerges a very strange result, . . . namely that with this faculty we can never get beyond the boundaries of possible experience. . . . [S]uch cognition reaches appearances only, leaving the thing in itself as something actual for itself but uncognized by us. (B xix–xx)

Commonly known as Kant's 'noumenal ignorance' or 'epistemic humility' doctrine, this is regarded as a signature Kantian thesis and one of the key positions that separates the mature, critical-period Kant from the epistemically permissive and rationalist pre-critical Kant. It is repeated throughout the CPR and in many other texts. This doctrine is severely at odds with the broadly rationalist epistemology elaborated in the Dissertation, where Kant takes the intellect to provide the subject with theoretical knowledge of necessary truths about the intelligible world. The noumenal ignorance doctrine appears to incorporate a wholesale abandonment of this rationalist epistemology and it appears to preclude any kind of substantive cognition of the intelligible world. It thus seems as though Kant's critical-period epistemology precludes him from appealing to the view elaborated in the Cosmological Interpretation as an account of the unity of space in the CPR and, indeed, there is scant evidence that Kant appeals to this view in that text.[27]

As such, commentators interested in Kant's justification for the claim that space is a unity in the CPR can be roughly divided into those who take the unity of space to be a brute fact about the nature of space, albeit one perhaps made phenomenologically evident via pure intuition (following Messina 2014, we can call this the 'Brute Given Reading'), and those who take the unity of space to be the result of a synthesis ultimately owed to, or guided by, an operation of the understanding (Messina calls this the 'Synthesis Reading').[28]

According to the Synthesis Reading, although Kant describes space in the Transcendental Aesthetic, including by affirming that it instantiates **unity**, independently of any appeal to syntheses of the understanding or imagination, in fact other texts make clear that Kant ultimately takes the unity

27 Kant's noumenal ignorance doctrine has been subject to a wide variety of interpretations. On Strawson's view, which is now an outlier, Kant adopts the quasi-positivist 'principle of significance,' which says 'there can be no legitimate, or even meaningful, employment of ideas or concepts which does not relate them to empirical or experiential conditions of their application' (Strawson 1966: 16). If this principle is true, it is easy to see how the noumenal ignorance doctrine follows immediately. Other interpretations contend that it is possible to think meaningful thoughts about things in themselves (and thus formulate truth-evaluable propositions about them), but that it is impossible to know or be justified in any propositions about things in themselves. See, e.g., Allison (2004). Others have advanced interpretations of Kant's noumenal ignorance doctrine according to which it is compatible with various kinds of knowledge or cognition of things in themselves. See, e.g., Langton (1998), Smit (2009), Hogan (2009b). Finally, some recent commentators have sought to more clearly distinguish Kant's conception of knowledge (Wissen) from his conception of cognition (Erkenntnis) and have argued that even if Kant's noumenal ignorance doctrine rightly rules out all cognition of things in themselves, Kant's epistemology may nevertheless permit some forms of knowledge of things in themselves, e.g., analytic knowledge or purely general knowledge. See, e.g., Adams (1997), Watkins and Willaschek (2017a) and (2017b), Schafer (forthcoming-a) and (forthcoming-b), and Chignell (2007a), (2007b) and (2014). Note that even if on some interpretations of Kant's noumenal ignorance doctrine, claims about the intelligible grounds of the sensible world would be permissible, one might still doubt that a theory as elaborate as the one I have ascribed to Kant in 1770 would be permissible. Furthermore, this question is moot, since that theory makes no discernible appearance in the CPR.

28 A main proponent of the Brute Given Reading is Allison (1983) and (2004). See esp. chap. 5 of Allison (2004). Versions of this view are also defended by Falkenstein (2004), Onof and Schulting (2015), McLear (2015), Allais (2009) and (2015), and Tolley (2016). Some proponents of the Synthesis Reading defend the strong view that the basic features of space, including its unity, are owed to a conceptual synthesis, i.e., a synthesis involving the categories. See, e.g., McDowell (1996) and Dufour (2003). Other proponents hold the weaker view that the unity of space is owed to a figurative synthesis by the imagination. See especially Longuenesse (1998) and (2005) and Friedman (2000) and (2012). On Longuenesse's view, such a synthesis is 'guided by' the categories but does not explicitly involve them. The Synthesis Reading has its roots in 19th century responses to Kant, including those by Hegel and Cohen. Messina (2014) himself defends a third reading of Kant's account of the unity of space in the CPR, which he calls 'The Part-Whole Reading,' according to which the unity of space is necessitated by the synthetic unity of apperception, but is not effected by any intellectual or imaginative act of the subject. Finally, I'll note that though I have, following other scholars, attempted to broadly group various interpreters together for the purpose of framing this discussion in a helpful way, scholars lumped together here differ in important ways and would certainly not agree on various important details. I'm largely abstracting from these differences because the aim of this section is not to adjudicate these disputes but rather consider these broad interpretive trends in light of the foregoing.

of space to be owed to some kind of synthesis of the undifferentiated and indeterminate spatial manifold. Longuenesse, emphasizing the famous footnote to §26 of the B Deduction (B 160–61), claims that §26 constitutes a 'rereading' of the Aesthetic such that space—understood as an infinite unified whole—instantiates the properties ascribed to it in the Aesthetic only by virtue of an imaginative synthesis (Longuenesse 1998: 214ff.).[29] The footnote in question states, in part:

> In the Aesthetic I ascribed this unity merely to sensibility, only in order to note that it precedes all concepts, though to be sure it presupposes a synthesis, which does not belong to the senses but through which all concepts of space and time first become possible. (B 160–61)

Kant here seems to say that the unity of space that the Aesthetic represented as owed solely to sensibility is in fact the result of a synthesis, albeit a synthesis that 'precedes all concepts.'

The Synthesis Reading carries some appeal. First, it reveals Kant as offering a concrete explanation for the unity of space. Given the role that the unity of space plays in the CPR, and given Kant's keen concern to provide an account of the unity of space earlier in his career, one might expect him to see the unity of space—and thus the unity of the sensible world—as subject to explanation. Second, the explanation Kant is taken to give is appealing in light of the radical transformation of his philosophy between 1770 and 1781. As we have seen, in the pre-critical philosophy, Kant seeks divine explanations of worldly unities. But in the CPR, one might expect Kant to seek in the transcendental subject what he once sought in God: insofar as the CPR strictly rules out theoretical cognition of the intelligible world, including God, one might think that such an explanation must appeal to the very nature of the subject. The Synthesis Reading respects this broad methodological shift in Kant's thinking.

However, much trouble has been made for the Synthesis Reading. Critics have pointed out that the footnote at B 160–61 that some defenders of the Synthesis Reading offer as the clearest support for their view does not unambiguously support the Synthesis Reading. After all, Kant introduces in that footnote a distinction between the 'form of intuition' and the 'formal intuition' of space, which is a representation of space 'as **object** (as is really required in geometry).' As such, the passage can plausibly read as suggesting only that a synthesis is required only for geometric representations, but that space itself, as it is described in the Transcendental Aesthetic, where it is understood to be a form of intuition, instantiates **unity** independently of any synthesis.[30] Such a view renders the Aesthetic textually unproblematic, since the Aesthetic ascribes **unity** to space with no mention of any synthesis. And it appears to be confirmed by the final sentence of the B 160–61 footnote, where Kant says that 'the unity of this a priori intuition belongs to space and time, and not to the concept of the understanding.'[31]

Furthermore, commentators have raised philosophical problems for the Synthesis Reading. According to the Synthesis Reading, the features of space described in the Transcendental Aesthetic are to be understood as the result of a synthesis. These features include **unity**, **monism** and the infinitude of space. However, as McLear (2015) points out, Kant contends that a synthesis always proceeds from part to whole: a synthesis is an act of gathering component representations into a single, unified representational whole (B 72; A 77/B 103). Kant denies that spatial intuition has this structure, since he contends that space is such that the whole is prior to the parts and that any decomposition of space would amount to its annihilation (A 24–25/B 39; A 438/B 466).

29 Cf. Friedman (2000) and (2012), who agrees with Longuenesse that that the general properties of space discussed in the Aesthetic are ultimately owed to a pre-categorial synthesis involving the exercise of the imagination, but focuses more specifically on the kind of imaginative synthesis required in geometric construction.

30 Tolley (2016) argues that Kant is in fact concerned with three distinct types of spatial representation: the form of intuition, the general concept of space, and particular geometric representations.

31 Textual challenges to Longuenesse's reading of B 160–61 and the Synthesis Reading more generally have been raised in recent literature by Messina (2014), McLear (2015), Onof and Schulting (2015) and Tolley (2016), among others. Each of these commentators contends that B 160–61 at most establishes that some kind of spatial representations are unified via a synthesis, but that the passage does not entail that the 'original' representation of space, understood as it is described in the Aesthetic, has its unity as the result of a synthesis. But they differ substantially in the precise details.

Thus, it would appear that an important feature of space as it is described in the Aesthetic cannot be accounted for by appeal to synthesis, and this very seriously calls into question the notion that Kant takes the properties of space as it is described in the Aesthetic to be owed to a synthesis. As such, we have further reason to doubt the Synthesis Reading.[32]

We are left with the view that the core properties that Kant ascribes to space in the Aesthetic, including **unity**, are independent of any operation of or influence from the understanding. They are perhaps phenomenologically evident to the subject in pure intuition or are presupposed by the content of spatial perception. But this falls short of offering an account or explanation of the instantiation of these properties by space: to say that we are justified in ascribing such properties to space on the basis of the nature of spatial representation falls quite short of showing why space instantiates such properties. And Kant offers no obvious further explanation of the unity of space in the CPR. As such, the unity of space appears, as many have thought, to be a brute feature of space in Kant's critical philosophy—a view that appears to be widely held by critics of the Synthesis Reading.

This is, in some ways, a frustrating interpretive result because, as we have seen, an animating feature of Kant's pre-critical philosophy is its rejection of the Leibnizian cosmology on the grounds that the Leibnizian theory offers an inadequate explanation of the unity of the world. The pre-critical Kant is thus keenly focused on securing the unity of the world and offers a subtle account developed across several decades—an account that expands to include the unity of space and the sensible world as Kant develops his theory of space as a form of sensibility. To suppose that the advent of the critical philosophy carries with it an abandonment of this project is to see a deep discontinuity in Kant's philosophy.[33]

A careful assessment of other post-Dissertation texts, however, may call into question the view that Kant abandoned this explanatory project with the advent of the critical philosophy. For example, in Metaphysik L1, dated to the mid-1770s, a period in which Kant was feverishly at work on his critical account of the understanding that would form the backbone of the CPR, Kant argues that '. . . [S]ubstances constitute a whole not by one-sided, but rather by reciprocal connections and actions, and that is interaction <commercium>. An interaction is thus necessary to the substantial composite. The form of the substantial composite thus rests on interaction' (L1, Ak., 28:196). He then maintains that the singularity of the world is entailed by the dependence of all existents on a single divine cause. Importantly, he then argues:

> But one could say: we imagine all things in space; and then the things must stand in interaction with one another simply because they are in one space. But to exist in space is not merely to exist, rather to exist in space already means: to be in community; for space is a phenomenon of the general connection of the world, and we want to have precisely the grounds of this connection through space. (L1, Ak., 28:212–13)[34]

Space is here regarded as instantiating **unity**, and Kant explains spatiality by appeal to the unity of the intelligible world. A condition, Kant says, on objects being in one space is that they are in community with one another. Space is thus not itself a condition upon the mutual interaction of substances, but rather is grounded on such 'community.' This passage thus asserts the dependence of space on the cosmological conditions of intelligible community even more forcefully than corresponding passages in the Dissertation.

32 Likewise, Onof and Schulting question whether the Synthesis Reading can adequately account for 'the actual infinity of space' as it is described in the Aesthetic, since, as they argue, such an infinity would be beyond the grasp or power of the understanding—a point Kant himself seems to affirm in the Aesthetic (2015: 19).

33 This is not to say that the CPR is not concerned to explain unities. It is. Kant is clearly concerned to account for the unity of apperception in the Transcendental Analytic and the unity of reason in the Transcendental Dialectic (see esp. the Appendix to the Dialectic, A 642/B 670ff.). My point here is just that it would be surprising to suppose that Kant is no longer concerned with a major explanatory question that animates his pre-critical philosophy even if we can expect that he lacks the resources to answer such questions within the epistemological confines of the CPR.

34 To be clear, Kant cannot be grounding space on the community of appearances, for appearances are spatial objects and so presuppose space. Thus, Kant's claim that space is grounded on, or a result of, 'the general connection of the world' must be a claim about the intelligible world.

Furthermore, Kant writes:

> As phenomenon, space is the infinite connection of substances with each other. Through the understanding we comprehend only their connection, to the extent they all lie in the divine. This is only the ground for comprehending the connection of substances through the understanding, to the extent we intuit the substances as though they lay generally in the divine. If we imagine this connection sensibly, then it happens through space. Thus space is the highest condition of the possibility of the connection. Now if we sensibly represent the connection of substances, which consists in this, that God is present to all things, then we can say: space is the phenomenon of the divine presence. (L1, Ak. 28:214)

This passage is clearly a version of the passage from the Dissertation in which Kant declares space to be 'phenomenal omnipresence,' and in it Kant asserts the dependence of space on an underlying metaphysical order, for Kant here explicitly claims that space is a sensible expression of the causal connections (maintained by God's presence) in virtue of which the world is, at the most fundamental level, a metaphysical unity.

These passages are from the mid-1770s and so they alone do not show that Kant continued to appeal to the Cosmological Interpretation after the publication of the CPR. One might dismiss them as mere relics from Kant's previous work that persist into a transitional period. This seems considerably less likely, however, when one considers evidence from the Metaphysik Mrongovius, which is dated to the 1782–83 academic year. These lectures were delivered after the publication of the first edition of the CPR and they include significant discussions of many doctrines that only first appear in the CPR, including, for example, the cosmological conflicts of reason, that is, the Antinomies (Mron., Ak., 29:849). There, Kant continues to assert that the intelligible world is a unity by virtue of the mutual dependence of all substances on one another, a feature of the world grounded in the divine cause (Mron., Ak., 29:849–51). He writes:

> The world is a substantial whole which is not a part of another, i.e., the absolute and non-relative which in no respect is part of another. Only the connection of the coordination of things in interaction is connection of the parts into a whole; but connection, subordination as effect and cause is not that. Therefore with the connection of the world with God, the world is not a part of God. This explanation of the world is an explanation of the intelligible world, where we understand by substances things as they are in themselves, and is certainly to be distinguished from the sensible world, which is a complex, given of all appearances, where we understand by substances the perduring in appearances. (Mron., Ak., 29:849)

Again, this passage indicates that Kant continues to articulate the cosmology of the intelligible world that he first develops in the 1740s and asserts through the 1770s. Furthermore, Kant's explanation of space in Mrongovius is a clear echo of his Dissertation account of space, explicated in the preceding section.

> The concept of space accomplishes in the sensible world what the divine omnipresence does in the noumenal world, and one can therefore call it as it were a phenomenon of the divine omnipresence. Perhaps God wanted thereby to make omnipresence sensibly cognizable to us. Newton called it the seat of the senses of the divine omnipresence. Perhaps space is also the only sensibility that belongs to all rational beings other than God. (Mron., Ak., 29:866)

Again, the claim here is that space is grounded in the unity of the intelligible world, a unity that is guaranteed by virtue of God's sustenance of relations of mutual dependence among substances he creates.

Finally, evidence from Kant's lectures on metaphysics in the 1790s indicates that he continued to explicate space and its unity in precisely the same terms. For example, in a passage from the Vigilantius lectures dated to 1794–95, Kant writes:

> Space itself is the form of the divine omnipresence, i.e., the omnipresence of God is expressed in the form of a phenomenon, and through this omnipresence of God all substances are in harmony. (Vig., Ak., 29:1008)[35]

There is thus significant evidence that Kant continued to assert the basic cosmology of the intelligible world that forms a core pillar of his pre-critical philosophy after the publication of the CPR and in many cases alongside key critical doctrines. Furthermore, Kant continues to speak of space as a 'phenomenon' of God's unifying conservation of intelligible substances.

Some interpreters are skeptical of according much weight to Kant's lecture transcripts in interpreting Kant's own views. For, first, it is well known that Kant lectured from Baumgarten's Metaphysics ([1757] 2013). Second, Kant's lecture transcripts are essentially student notes of his lectures. One might thus suppose that they are an unreliable source of Kant's own views. However, in this case, I think neither of these concerns apply. For, first, the view in question here—that the unity of space is grounded in a divinely conserved unity of intelligible substance—is not a view to be found in Baumgarten. Baumgarten is, broadly speaking, a Leibnizian who asserts the causal isolation of substances from one another. Thus, Kant's appeal to the distinctive divine cosmology found in his own pre-critical writings ensures that the view in question is not merely drawn from Baumgarten's text. Second, though the nature of the transcripts must induce interpretive caution, in this instance, the view that we find in student lecture transcriptions has an unambiguous precedent in several published writings of Kant's and is reproduced nearly verbatim across several sets of lecture transcripts. This should assuage any worry that the lecture transcripts involve distortions that render them interpretively problematic.

So what should we make of Kant's repeated invocation of the account articulated by the Cosmological Interpretation even after the publication of the CPR despite the fact that the CPR contains no appeal to such cosmological views in explicating that text's account of space? I propose that we can best account for this puzzling collection of interpretive evidence by positing that Kant does not give up his account of the unity of space developed in the Dissertation, but instead understands its epistemic status to change. That is to say, on my proposal, Kant does not abandon the view that the unity of space is grounded in a divinely conserved unity of intelligible substance; rather, he epistemically demotes the view upon his adoption of a restrictive theory of cognition and knowledge in 1781. As such, this theory has no place in the system of knowledge developed in the CPR. But in looser epistemic contexts, such as his lectures on metaphysics, Kant elaborates and defends this theory. In this way, the Brute Given Reading is partially vindicated: from the perspective of the epistemically restrictive context of the CPR, the unity of space is a brute fact about the nature of space. But we needn't understand Kant as having fully abandoned his pre-critical project of pursuing explanatory grounds for the core features of space: Kant continues to maintain that the most plausible explanation of the unity of space is the Cosmological Interpretation. It's just that such an explanation cannot achieve the status of cognition or knowledge.

Indirect support for this proposal is provided by the well-known example of Kant's proof of the existence of God first fully elaborated in 1763's Only Possible Argument text. There, Kant argues that the existence of God can be demonstrated from facts about bare possibilities: he contends that possibilities themselves require explanations and that only God could ground facts about what is possible. Of course, such a proof of the existence of God runs afoul of the CPR's contention that our cognition reaches only so far as the bounds of possible experience: insofar as such a proof aims to produce knowledge or cognition of God's existence, it cannot be accepted. But there is evidence that Kant does not come to reject the argument he gives in 1763. Rather, he epistemically demotes it. In a well-known discussion from the 1783–84 Pölitz transcription of Kant's lectures on philosophical theology, Kant rehearses the argument that he 'discussed in detail in an essay I published some years ago' (Pölitz, Ak., 28:1034). He goes on to say:

> But even this proof is not apodictically certain; for it cannot establish the objective necessity of an original being, but establishes only the subjective necessity of assuming

35 Cf. Kant's discussion of space in the Dohna lectures of 1792–93, Ak., 28:666.

> such a being. But this proof can in no way be refuted, because it has its ground in the nature of human reason. For my reason makes it absolutely necessary for me to assume a being which is the ground of everything possible, because otherwise I would be unable to know what in general the possibility of something consists in. (Pölitz, Ak., 28:1034)

Thus, the restrictive epistemological context of the CPR does not induce Kant to abandon the line of reasoning concerning God's existence he developed in 1763. He clearly regards it as inescapable and convincing. Rather, he demotes the epistemic status of the proof: it does not establish God's existence with 'objective necessity,' but rather establishes the 'subjective necessity' of assuming the existence of God on the grounds that only such an assumption can render intelligible the nature of basic modal facts.[36]

From the point of view of the CPR, then, the result of Kant's possibility proof of the existence of God is not knowledge or cognition, and for this reason the proof cannot be accepted in a philosophical system that aims to admit a priori reasoning that meets the standard of 'apodictic certainty.' Rather, for Kant, the idea of God serves as a 'regulative ideal' of reason and the appropriate attitude taken toward the object of that idea is mere belief. In the Canon of Pure Reason, Kant argues that though our attitude toward the proposition 'God exists' is a form of Fürwahrhalten ('taking to be true'), it falls short of Wissen ('knowledge'), which requires both 'objectively sufficient' and 'subjectively sufficient' grounds for the truth of the proposition (A 822/B 850). Rather, our attitude is Glaube (belief, or faith), which requires only subjectively sufficient grounds for assent. Kant contends that subjectively sufficient grounds for belief in God are given on both doctrinal grounds (grounds concerning our attempts to render nature intelligible by appeal to its systematicity and purposiveness) and on moral grounds (grounds given by the implications of the reality of our ability to be bound by moral imperatives) (A 825/B 853).[37]

I am suggesting, then, that the fate of Kant's pre-critical account of the unity of space might well be understood to be similar to that of his pre-critical proof of the existence of God: though this view does not receive discussion in the CPR, other texts make clear that Kant continues to accept an argument that he finds compelling, and continues to appeal to such an argument in looser epistemic contexts than that of the CPR, but recognizes that such an argument fails to meet the rigorous standard of apodictic certainty for a priori reasoning adopted in the CPR. On my view, this best makes sense of Kant's repeated invocation of his Dissertation account of the unity of space in critical-period discussions of cosmology.

From the point of view of the Transcendental Aesthetic, and from the system of knowledge erected in the CPR more generally, we must understand the unity of space to be a brute fact about the nature of space: Kant does not attempt to proffer a cosmological explanation of the core properties of space there or elsewhere in the CPR. But from the point of view of Kant's broader metaphysical and theological thought, which includes considerable discussion of the nature of the intelligible world and the existence and nature of God, Kant's ultimate position appears to be the one he developed in 1770.

IV. CONCLUDING REMARKS

The primary aim of this essay has been to investigate and interpret Kant's pre-critical account of the unity of space. That Kant pursued that project in his pre-critical philosophy has not itself been widely recognized in the literature. My conclusion has been that Kant there develops and defends an account of the unity of space whereby it is grounded in the unity of created substance, which is itself owed to a divinely imposed and sustained set of relations of mutual dependence. I have also

36 The literature on the fate of Kant's 1763 argument for the existence of God has grown in recent years. For views that broadly accept the idea that, in Kant's corpus, the argument survives but its epistemic status is downgraded, see Wood (1978), Logan (2007), Fisher and Watkins (1998), and Henrich (1960). Others have held that Kant comes to reject the argument in his critical philosophy. See, e.g., Chignell (2009) and (2012), Boehm (2012) and Abaci (2017).

37 Chignell (2007a) and (2007b) contain valuable discussions of Kant's largely ignored distinctions among doxastic states in the Canon of Pure Reason. Cf. Stevenson (2003). Pasternack (2010) is an interesting discussion of Kant's discussion of belief in God on doctrinal grounds.

argued that there is reason to believe that Kant never abandoned this view, even if he downgrades its epistemic status in the rigorous epistemological context of the CPR.

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The author has no competing interests to declare.

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