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How Sensible Form Matters:
Kant on Incongruent Counterparts and Space

By

Pia Dorothea Schneider

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

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in the

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University of California, Berkeley

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Professor Hannah Ginsborg, Co-Chair

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Professor Cathryn Carson

Spring 2026

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Abstract

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In the *Critique of Pure Reason* Kant argues that space is the form of our sensibility, our cognitive capacity in virtue of which we sensibly apprehend objects. This dissertation motivates an interpretation of Kant's conception of space as the form of our sensibility on the basis of his discussions of so-called incongruent counterparts. Incongruent counterparts are pairs of objects that are similar in shape and the same in size but which cannot be superimposed; the most common example is the pair of our left and right hands. I argue that Kant takes the difference between such objects to show that space as a whole is prior to objects and makes them possible. On the basis of this priority of the unity of space over objects, I argue further that incongruent counterparts motivate the interpretation of Kant's conception of space as the form of our sensibility according to which the notion of the form of our sensibility denotes an all-encompassing unity on account of which the objects of our cognition form one overall whole, namely the sensible world. This unity figures necessarily into the possibility of the objects of our cognition such that they have to be "in-formed" by space in order to make for the material of our cognition in the first place. Kant, I thus argue, endorses what we might call a world-first view: we cognize objects *as parts of one* sensible world. I explain how this contrasts with the view of Kant's rationalist predecessors, especially with Leibniz's view, which can be characterized as a substances-first view: according to Leibniz, the objects of our cognition are possible independently of the way in which they form an overall whole; that is, we cognize them as they are in themselves.

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List of Abbreviations

Kant's texts:

- Critique* *Critique of Pure Reason*. Edited and translated by Paul Guyer and Allen W. Wood. Cambridge University Press, 1998.
- DS* *Concerning the ultimate ground of the differentiation of directions in space*. In: *Theoretical Philosophy 1755-1770*. Edited and translated by David Walford and Ralf Meerbote. Cambridge University Press, 2002.
- ID* *Inaugural Dissertation: On the form and principles of the sensible and the intelligible world*. In: *Theoretical Philosophy 1755-1770*. Edited and translated by David Walford and Ralf Meerbote. Cambridge University Press, 2002.
- LF* *Thoughts on the true estimation of living forces and assessment of the demonstrations that Leibniz and other scholars of mechanics have made use of in this controversial subject, together with some prefatory considerations pertaining to the force of bodies in general*. In: *Natural Science*. Edited by Eric Watkins. Cambridge University Press, 2012.
- Log* *The Jäische Logic*. In: *Lecture on Logic*. Edited and translated by Michael Young, 527-640. Cambridge University Press, 1992.
- MFNS* *Metaphysical Foundations of Natural Science*. Edited and translated by Michael Friedman. Cambridge University Press, 2004.
- ND* *A new elucidation of the first principles of metaphysical cognition*. In: *Theoretical Philosophy 1755-1770*. Edited and translated by David Walford and Ralf Meerbote. Cambridge University Press, 2002.
- NQ* *Attempt to introduce the concept of negative magnitudes into philosophy*. In: *Theoretical Philosophy 1755-1770*. Edited and translated by David Walford and Ralf Meerbote. Cambridge University Press, 2002.

- OPA* *The only possible argument in support of a demonstration of the existence of God.*
In: *Theoretical Philosophy 1755-1770*. Edited and translated by David
Walford and Ralf Meerbote. Cambridge University Press, 2002.
- OT* *What does it mean to orient oneself in thinking?* In: *Religion Within the*
Boundaries of Mere Reason. Translated and edited by Allen Wood and
George di Giovanni. Cambridge University Press, 1998.
- Prol* *Prolegomena to any future metaphysics that will be able to come forward as*
science. Edited and translated by Gary Hatfield. Cambridge University
Press, 1997.

References to the *Critique of Pure Reason* follow the pagination of the A-edition/ B-edition. References to Kant's other works follow the abbreviation conventions above followed by the volume and page number of the standard Akademie edition. Unless otherwise noted, I have followed the translations given in the Cambridge editions of Kant's works.

Other texts:

- AG* Leibniz, G.W. *Philosophical Essays*. Edited and translated by Roger Ariew and
Daniel Garber. Hackett Publishing Company, 1989.
- AT* Descartes. *Oeuvres de Descartes*. Edited by Charles Adam and Paul Tannery.
J.Vrin, 1904. (References are to volume number and page.)

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Introduction

Alfred North Whitehead famously claimed that “[t]he safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato.”¹ Among the many exciting ideas one can find in Plato’s corpus, a quite well-known one is the so-called ‘line analogy,’ which he puts forth in Book Six of the *Republic* right on the heels of the analogy he draws between the sun and the form of the good. Socrates, channeling Plato, asks his interlocutor Glaucon to imagine a line divided in two unequal sections, the shorter one representing the sensible realm, the longer one the intelligible realm. He then asks him to divide each section in turn according to the same proportion as the overall line. The shorter section of the sensible, Socrates explains, represents images, i.e., shadows and reflections on the water. The longer section represents that of which the images are images of, i.e., sensible objects. Socrates then argues that this division carries over to the intelligible realm. Some intelligible things, he claims, are just images. These fall under the shorter section of the intelligible. And he argues that then there are intelligible things that are the originals of which the images are images of. These are the forms; and they are represented by the longer section of the intelligible. But this correspondence is not the only point Socrates wishes to make with respect to the line. He further argues that what is represented by the longer section of the sensible is the same as what is represented by the shorter section of the intelligible. That is, what is an original in the sensible, is a mere image in the intelligible.

Socrates seeks to support this latter idea by describing the method of two sciences that he associates with the shorter section of the intelligible, i.e., geometry and arithmetic:

“[Y]ou will be aware that they summon up the assistance of visible forms, and refer their discussion to them, although they’re not thinking about these, but about the things these are images of. So their reasoning has in view the square itself, and the diagonal itself, not the diagonal they have drawn. And the same with other examples. The model they construct, or figures they draw, which have their own shadows, and images in water – these they treat in turn as images, in their attempt to see the corresponding things themselves which can be seen only through thinking.”²

One of the major figures within the European philosophical tradition is Immanuel Kant. It is hard to overestimate Kant’s impact, but if one wants to try to assess it, one might just agree with the simple but adequate measure given by Adorno, who notes that the mature philosophical position that Kant advances in the *Critique of Pure Reason*, called transcendental idealism, penetrated so far as to influence our everyday way of thinking.³

¹ Whitehead (1978, 39).

² *Republic* (510d-e).

³ Adorno marks this influence specifically with respect to Kant’s doctrine that we cannot have theoretical knowledge of matters concerning the soul, the world as a whole, and God: “That, which at first marks the tremendous influence of the book, and which really changed the whole consciousness since then, so that it probably still exerts influence on the everydayness of our spirit, that is probably that it actually banished certain questions from our horizon as questions of reason.” – “Das, was also zunächst einmal die ungeheure Bedeutung des Buches ausmacht, und was wirklich das ganze Bewußtsein seitdem so verändert hat, daß es wahrscheinlich noch bin in die Alltäglichkeit

Transcendental idealism states that the objects of our cognition are mere appearances and that we cannot have any knowledge of things as they are in themselves. The key aspect of this position turns on the idea that our sensibility, the capacity by means of which we can be affected by objects in a sensible manner, has forms, and that these forms are space and time. And before we turn to the proper subject matter of this dissertation, which is Kant's view that space is the form of our sensibility, I just want to note, in lieu of an epigraph and to lend some support to Whitehead's comment, how this view forms a quite striking footnote to Plato, in particular to his line analogy. This footnote's basic tenet would read something along the following lines: Rather than being images and reflections of purely intelligible forms, the geometrical and arithmetical aspects of sensible things originate from the forms of our sensibility. And rather than providing an opportunity to ascend to the purely intelligible realm, arithmetic and geometry bring us to the borders of our understanding, which is always confined to what is sensible.

In the first part of the *Critique of Pure Reason*, the Transcendental Aesthetic, Kant argues that space and time are nothing but the forms of our sensibility. Even if one can get a mental grip on the notion of sensibility as the cognitive capacity in virtue of which we sensibly apprehend objects – for example, perceive objects by sight or touch – the notion that this capacity has a form remains a stumbling block.

Here is another stumbling block that we encounter when the discussion turns to space: Kant argues that the difference between a left hand and a right one, a difference between so-called incongruent counterparts, tells us something important about the nature of space and our cognitive grasp of reality. What is it about this difference that it comes to have this philosophical significance?

Now just as two negative magnitudes can quite surprisingly turn into a positive one if put in a certain relation, two stumbling blocks can be turned into something understandable if put in the right kind of relation with each other. At least this is what I hope to accomplish.

In order to motivate a relation between these two points that is worthy of a longer investigation, let us first survey three instances in which Kant discusses incongruent counterparts.⁴ The first and most extensive discussion of these objects is in an essay from 1768, so from Kant's pre-Critical phase, entitled *Concerning the Ultimate Ground of the Differentiation of Directions in Space*. The background of this essay forms a debate over the nature of space that was ongoing at Kant's time. The Newtonians maintained that space is something absolute and similar to a substance, so an independently existing thing, whereas the Leibnizians argued that space is something dependent on objects, in that it is nothing but relations among objects. While Kant endorsed a more Leibnizian view in his first published writings, in the essay from 1768 he suggests that the possibility of the difference between members of a pair of incongruent counterparts speaks in favor of a view along the Newtonian lines. He argues that the existence of incongruent counterparts shows that "[a]bsolute space, independently of the existence of all matter and as itself the ultimate foundation of the possibility of the compound character of matter, has a reality of its own."⁵

unseres Geistes hineinwirkt, das ist wahrscheinlich das, daß es überhaupt gewisse Fragen aus unserem Horizont als Fragen der Vernunft verbannt hat,"(2022, 16).

⁴ The passages I mention here are not the only occasions on which Kant discusses incongruent counterparts. He also brings them up in his *Metaphysical Foundations of Natural Science*, which I will sometimes draw on in my discussions.

⁵ [DS 2:378].

Two years later, in his *Inaugural Dissertation* from 1770, written on the occasion of taking the post of professor in metaphysics at the university in his hometown Königsberg, incongruent counterparts resurface. But instead of speaking to the nature of space, Kant now refers to them in order to motivate a point about *our representation of space*, that this representation is an a priori intuition, i.e., a kind of mental representation that is characterized by its independence from outer sensations and by its singularity. Kant argues that “[i]t is clear [...] that in these cases the difference, namely, the incongruity, can only be apprehended by a certain pure intuition.”⁶

In yet another instance, namely in §13 of the *Prolegomena to Any Future Metaphysics*, published in 1783 and written with the intention to clarify his transcendental idealism after the first *Critique* was criticized as impenetrable, Kant argues that incongruent counterparts provide good evidence for this idealism. After arguing that the phenomenon of incongruent counterparts poses a “paradox” for the view that takes space to be a quality of things in themselves, he claims that the solution of the paradox calls for the conception of space as the form of our sensibility, the significance of which he spells out with the rather cryptic remark that “the inner determination of any space is possible only through the determination of the outer relation to the whole space of which the space is a part (the relation to outer sense); that is the part is possible only through the whole.”⁷

The dates of these discussions are noteworthy. The *Inaugural Dissertation* from 1770 marks the most crucial step Kant takes towards his Critical system prior to the publication of it in 1781. In the *Dissertation* Kant claims for the first time that space is the form of our sensibility, and his arguments in support of this view find their way into the *Critique* in almost the same form. The significance of the *Dissertation* within the development of Kant’s philosophical views gives, in turn, interpretative significance to the 1768 essay especially insofar as it manifests a change in Kant’s view of space. Now even though he does not discuss incongruent counterparts in the *Critique*, his decision to appeal to them in the *Prolegomena*, especially in relation to his transcendental idealist thesis, still lends these objects significance at the Critical stage.

Corresponding to the progression of the dates, there appears to be a progression in Kant’s thought in regard to these objects, culminating in his transcendental idealism. Thus one might form the reasonable expectation that Kant’s discussions of incongruent counterparts reveal something about the conceptual genealogy of his idealism and the motivation behind the latter. Yet commentators have been quite puzzled by the apparent changes in the conclusions that Kant derives from incongruent counterparts. For not only are there obvious changes but, as noted, e.g., by Norman Kemp Smith, Kant seems to make contradictory claims in regard to these objects.⁸ In 1768 he argued that these objects show the *reality* of space whereas later, in 1783, he took them to show its *ideality*.

Some commentators have, however, discerned a common thread running through Kant’s discussions of incongruent counterparts. Hans Vaihinger observed that Kant argues in all these instances that they show that objects are only possible as parts of a common space as a unity, of which every extension has to be regarded as a part.⁹ It is this common thread of which I will claim that it provides a crucial way of motivating Kant’s conception that our sensibility has forms, and that one of these forms is space.

⁶ [ID 2:403].

⁷ [Prol 4:286].

⁸ See Kemp Smith (1991, 45).

⁹ See Vaihinger (1892, 526).

In order to draw out a connection between Vaihinger's observation and Kant's conception that space is the form of our sensibility, it will be important to acknowledge the fact that the notion of form comes with philosophical baggage. The philosopher who coined the term "form" in its most prevalent philosophical meaning is Aristotle. According to Aristotle's conception of an individual substance, a substance is composed of matter and form, it is hylomorphic (from the ancient Greek *hyle*, which means *matter*, and *morphē*, which means *form*). Consider, by way of an example, a house. A house is made of some *material*, bricks and mortar say, that are *organized into a shape*, the shape of a house, which then serves the function of habitation. Take as another example Socrates. Socrates has a *body*, arms, legs, a head, etc., as well as a *soul* that animates and organizes the body, such that Socrates is a living human (and also gives, in the case of Socrates, the character of a gadfly). And so Aristotle argues more generally that every individual substance is made of matter (bricks, bodies, etc.) and a form, a principle of organization of the matter (the shape of a house, a soul, etc.).¹⁰

There are several explanatory roles Aristotle assigns to the notions of matter and form, e.g., as mentioned with respect to the house, the form can explain a certain function of the object, such as the function of providing habitation. Another important explanatory role is that the form explains the *unity* of an object, i.e., what makes an object an *individual* or *independent* object. And it is the aspect of unity that I want to emphasize when we ask about the relationship between Kant's conception of the form of sensibility and incongruent counterparts.

Given the two aspects of matter and form of an individual substance, we can inquire into their relationship to one another, in particular whether one is prior to and independent of the other, and whether one makes the other possible. However, here we are met with a certain peculiarity that was noticed by J. L. Ackrill.¹¹ Consider again a house. We have the bricks and mortar as matter, and the shape of the house as its form. When we ask, do the bricks exist prior to and independently of the form of the house and make the latter possible, it is quite natural to think, yes. For we can imagine that the bricks and mortar might have not formed the house. As Ackrill notes, "[t]o speak of a composite qua material or in its material aspect is to refer to some material whose identity as that material does not depend on its being *so* shaped or in-formed."¹²

Consider then, again, Socrates. Socrates' body is his matter and his soul is the form. But can we say in the same way as we do of the house that Socrates' body exists prior to and independently of his soul? Such a claim would be challenged by pointing out that there is a sense in which Socrates' dead body – his corpse – does not make for his matter.¹³ It seems that we cannot think of Socrates' body as Socrates' matter without already assuming the matter to be in-formed by Socrates' soul. As Ackrill notes, "the material in this case is not capable of existing except as the material of an animal, as matter so in-formed."¹⁴

In the following thesis, I want to suggest that the idea that the matter of something is not the thing's matter unless it is already in-formed, together with the sense of form according to which it denotes a unity, is illuminating Kant's notion of form as it figures in his conception of the form of our sensibility, and his interest in incongruent counterparts. In order to make this out, note first an important difference between Aristotle's use of the concepts of matter and form and

¹⁰ See Aristotle *Metaphysics* vii, 7-9.

¹¹ Ackrill (1972/73).

¹² Ackrill (1972/73, 125).

¹³ Aristotle argues that the dead body of Socrates would be called Socrates' body only homonymously, see, e.g., *De Anima* ii, 412b10-24. So the dead body is no more the body of Socrates than the eye of Michelangelo's David is the eye of David.

¹⁴ Ackrill (1972/73, 126).

Kant's. As explained, Aristotle employs these terms to theorize about an individual substance. But when it comes to Kant's notion of the form of our sensibility and a corresponding notion of matter, the concern is not with the unity of an individual substance. Instead, I maintain that when it comes to the form of our sensibility, the unity denoted is of a larger, an all-encompassing whole, i.e., the unity of a world. The notion that our sensibility has a form is to explain a unity among *all possible sensible objects*, and how these objects, which are the matter in this case, together form one overall whole, the sensible world.

With this difference in mind, let us return to Vaihinger's observation about Kant's discussion of incongruent counterparts. Again, Vaihinger noted that Kant takes these objects to show that space as a unity is prior to objects, and that objects are possible as parts of a common space. Now it is for the reason that incongruent counterparts speak to a priority of space as a whole over objects that they speak to the view that space is the form of our sensibility. That is, I want to suggest that we understand the role that the form of sensibility plays for the objects of our cognition along similar lines to the role that Socrates' form plays for Socrates. Just as the latter, i.e., Socrates' soul, makes the matter of Socrates possible as this matter, so too does the form of our sensibility make possible the matter of our cognition as this matter. The objects of our cognition have to be already 'in-formed' by the form of our sensibility in order to make for the material for our cognition. And as the unity of the form of our sensibility denotes an all-encompassing unity, I maintain that according to Kant, we cognize objects as parts of a common world. And it is with respect to this point that incongruent counterparts have philosophical significance for Kant. They are evidence in support of such a world-first picture.

The thrust of this view can be better appreciated by considering the way in which it contrasts with Leibniz's, one of the most important predecessors of Kant's. And part of my goal is to show that Kant arrives at a world-first view through a critical engagement with the Leibnizian rationalist metaphysics of his time. According to Leibniz's conception of basic substances, substances are possible independently of the way in which they form an overall whole. He conceives of a basic substance as something entirely self-sufficient and closed off from other possible substances. Substances thus need not stand in any kind of relation to one another on account of which they can interact; and substances need not form one common world. Now even though they do not need to, Leibniz argues that substances do in fact form a world. He thinks that substances are created by a benevolent God, a God who would not deceive us by making us believe that things are indeed connected. Substances thus stand in what Leibniz calls a pre-established harmony. But this renders the unity among objects something merely contingent or accidental to them. The modal character of the unity so established can be compared to the modal character of the form of a house, which, as noted above, is something incidental to the bricks and mortar as the matter of the house. So in contrast to Kant, Leibniz endorses what we might call a substances-first view, a view according to which substances are possible independently of the way in which they make for the material that is to form a world.

My main point is then the following: On account of the view that space is the form of our sensibility, Kant endorses a world-first view according to which the objects of our cognition are possible merely as parts of a whole. With this view he distances himself from the Leibnizian rationalist tradition according to which the objects of our cognition are possible independently of the way in which they form an overall unity. And the philosophical significance of incongruent counterparts lies in the way in which they support the world-first approach.

I will develop these points over the course of five chapters. In the first chapter, I turn to Kant's 1768 essay and the analysis of incongruent counterparts he provides there. I will show

how the difference between incongruent counterparts is grounded in space as a whole, and how this speaks to the point that objects are possible as parts of space as a unity, of which every extension has to be regarded as a part.

Next I turn to the relevance of this point for Kant's conception of form as it figures into his view that space is the form of our sensibility. To this end, and in particular to highlight the aspect of unity in Kant's conception of form, I motivate this conception against the background of a long-standing problem that he sees with Leibniz's view, which I call the problem of unity. This problem centers around the question of how it is possible for a multiplicity of independently existing objects to form one overall whole. In the third chapter, I explain this problem, focusing on two of Kant's pre-Critical writings, the *New Elucidation of the First Principles of Metaphysical Cognition* from 1755 and *The Only Possible Argument in the Support of a Demonstration of the Existence of God* from 1763. I then turn in chapter four to the *Inaugural Dissertation*, in which Kant introduces his conception of form and argues that space is the form of our sensibility. I relate Kant's point to the problem of unity and explain how this draws out the philosophical significance of incongruent counterparts, i.e., that they speak to the priority of space as an overall unity over the possibility of objects. The view that space is the form of sensibility turns out to be a response to the problem of unity. In particular, in virtue of being in the same space, objects are independent of one another, but also form one world. However, Kant does not yet reach this solution in the *Dissertation*. For, he does not think at this point that the form of sensibility conditions the understanding.

In the *Critique of Pure Reason*, Kant has come to think exactly this latter point, that the forms of our sensibility conditions the understanding. This leads him to reconceptualize the issue he takes with Leibniz. In the fourth chapter I turn to a section from the first *Critique*, the *Amphiboly*, in which Kant criticizes Leibniz's view. This criticism is focused on Leibniz's rationalism, i.e., the view that our understanding relates to objects, including sensible objects, in an unconditioned manner. Focusing on a discussion centered around the contrast between the principle that matter precedes form and the principle that form precedes matter, I interpret Kant's point against the background of the problem of unity and the conception of form that he develops in the *Dissertation*. I argue that the contrast Kant makes amounts to the contrast between a substances-first view and a world-first one, where again the crucial difference is whether the matter that forms the world is possible independently of the form of the world, or whether the matter is merely possible as already in-formed. In this section it also becomes clear that when it comes to the problem of unity Kant ultimately sees the issue with Leibniz in his rationalism. And so Kant contrasts to this rationalism the view according to which the understanding is conditioned by the forms of sensibility, which then gives rise to the world-first view.

In the final chapter, I turn to Kant's discussion of incongruent counterparts in §13 of the *Prolegomena*. Kant claims in this section that incongruent counterparts pose a paradox for the conception of space as a quality of things in themselves, and he argues that a solution requires the conception of space as the form of our sensibility. On account of the latter, he explains that 'the inner determination of any space is possible only through the determination of the outer relation to the whole space [...], that is, the part is possible only through the whole.' I interpret this section in light of the contrast Kant makes in the *Amphiboly*. I thus argue that the way in which incongruent counterparts pose a "paradox" for the view that space is a quality of things in themselves concerns the way in which this conception of space originates from a substances-first view and Leibniz's rationalism. And I argue that Kant's solution should be understood in terms

of a world-first view. For under such a view, the matter of a world is only possible as already informed, i.e., objects are only possible as parts of a unity.

Chapter 1: Constructing a Counterpart

Overview

In his essay *Concerning the Ultimate Ground of the Differentiation of Directions in Space* from 1768, Kant turns to incongruent counterparts to argue that “[a]bsolute space, independently of the existence of all matter and as itself the ultimate foundation of the possibility of the compound character of matter, has a reality of its own.”¹⁵ He claims that the difference between such objects as a left and a right hand speaks to this ontological status of space on the basis that the direction in which the parts of an object are oriented “refers [...] to universal space as a unity, of which every extension must be regarded as a part.”¹⁶

The goal of this chapter is to see how the difference between incongruent counterparts relates to space as a unity of which every extension has to be regarded as a part.¹⁷ To this end, I want to draw attention to three parts of Kant’s essay. The first concerns the discussion of the concept of direction. A noteworthy point about this discussion is that Kant relates differences in direction to space’s three-dimensionality. This, I will argue, allows us to indicate a connection between the difference in direction and the difference between incongruent counterparts.

The second part of Kant’s essay that I want to draw attention to discusses the construction of a counterpart to a given chiral object. I show how this construction, as conceived by Kant, provides a way to connect differences in direction to the difference between incongruent counterparts. And I argue that the construction illustrates the way in which this difference is grounded in space as a unity.

The third part of Kant’s essay that I want to draw attention to is one in which Kant argues that the difference between incongruent counterparts is an inner difference. Although a full interpretation of this point has to wait until we turn to §13 of the *Prolegomena* in chapter 5, I will highlight some of the points that Kant makes about this in this early discussion. Before I discuss each of these parts, in sections 1.3, 1.4, and 1.5 respectively, I provide some historic context in section 1.1 and motivate my overall interpretational approach towards the 1768 essay in section 1.2.

1.1 Some Historic Context to Kant’s 1768 Essay

Compared to his other pre-Critical writings, Kant’s 1768 essay has received quite a lot of attention in the secondary literature. It has drawn such attention, because independently of Kant’s philosophical system, the essay can be read as a contribution to the debate between the Newtonians and the Leibnizians over the nature of space. Our interest in the essay is not in how it contributes to this debate but how it figures into Kant’s criticism of Leibniz, and the

¹⁵ [DS 2:378].

¹⁶ [DS 2:378].

¹⁷ Our focus is thus less with Kant’s claim that the difference speaks to the *reality* of absolute space, but we are rather focused on Vaihinger’s observed common thread, that incongruent counterparts show that objects are only possible as parts of a common space as a unity, of which every extension has to be regarded as a part, which was mentioned in the introduction.

development of his conception of space as the form of our sensibility. But Kant's view results from a critical engagement with Leibniz's conception of space, and he also paid close attention to, and criticizes, e.g., in the *Inaugural Dissertation* and in the *Transcendental Aesthetic*, the Newtonian conception. It is thus worth having the basic tenets that figure into this debate in mind before turning to Kant's views.

The *locus classicus* of the debate between the Newtonians and the Leibnizians over the nature of space is the *Leibniz-Clarke Correspondence*, in which Clarke represents the Newtonian view. A further helpful resource for the Newtonian view of space is a text by Newton, called *De Gravitatione*. Of the latter it needs to be noted that, since it only first appeared in print in 1962, neither Leibniz nor Kant had access to it.¹⁸ But it still gives insight into the Newtonian conception that is helpful in relation to Kant's discussion of incongruent counterparts.

1.1.1 The Newtonian view on the nature of space

Newtonians maintain that space is an infinite, uniform whole that has an existence of its own, independently of bodies within it. As Clarke explains in his fourth reply to Leibniz, "[s]pace is not bounded by bodies, but exists equally within and without bodies. Space is not inclosed between bodies ; but bodies, existing in unbounded space, are, themselves only, terminated by their own dimensions."¹⁹

For Kant, the question about the relationship between space and bodies is central to his discussion of incongruent counterparts. As made evident by the quotation from Clarke, the Newtonians think that space as a whole ontologically precedes bodies. Two ways in which one might think about the precedence of space over bodies are captured in a passage from Newton's *De Gravitatione*:

"In all directions, space can be distinguished into parts whose common boundaries we usually call surfaces; and these surfaces can be distinguished in all directions into parts whose common boundaries we usually call lines; and again these lines can be distinguished in all directions into parts which we call points. [...] [T]he delineation of any material figure is not a new production of that figure with respect to space, but only a corporeal representation of it, so that what was formerly insensible in space now appears before the senses."²⁰

One sense in which space as a whole can be said to be prior to bodies concerns the way in which space as a whole precedes its parts, where the parts of space are given by way of introducing limitations. As Newton writes, in all directions, we can distinguish space into parts by way of introducing boundaries such as surfaces. Similarly, we can think of the specific extension of a body as a limitation of the whole space. And so one sense in which space can be said to be prior to bodies is that a body qua extended thing is something obtained by way of limiting space.

Another sense in which space is prior to a body is given by the idea that the delineation of a material figure is not a new production of that figure but only a corporeal representation of it.

¹⁸ It was published in a collection *Unpublished Scientific Papers of Isaac Newton* edited by A. Rupert Hall and Marie Boas Hall. It is debated when the manuscripts were written. Dates range from the 1660s to the 1680s.

¹⁹ Clarke (1956, 47).

²⁰ Newton (2014, 36f.)

This priority of space over body can be understood as the priority of the formal figure over the body *qua* material thing.

It is worth noting how these two priorities can relate to one another. If it is assumed that the material figure of a body is not a new production but merely a corporeal representation of the formal figure, and the formal figure of the body is a limitation of space as a whole, then the material figure of a body can be thought of as something that arises as a limitation of space as a whole. As we will see, the significance of incongruent counterparts for Kant has to do with the way in which bodies *qua* shaped material objects involve space as a whole.

A further relevant aspect of space that is emphasized by the Newtonians and that comes into view if one considers the mereological structure of space – i.e., the structure that pertains to its part-whole relationship – concerns the unity of space. Consider the following contrast that Clarke makes between a corporeal part and the parts of space:

“Parts, in the corporeal sense of the word, are separable, compounded, ununited, independent on, and moveable from, each other : but infinite space, though it may by us be partially apprehended, that is, may in our imagination be conceived as composed of parts ; yet those parts (improperly so called) being essentially indiscernible and immovable from each other, and not portable without an express contradiction in terms, [...] space consequently is in itself essentially one, and absolutely indivisible.”²¹

Clarke argues that unlike corporeal parts, the parts of space are immovable, and that this shows that space is essentially one. As we will see when we turn to the *Inaugural Dissertation* Kant also argues for the essential unity of space. But Kant’s considerations focus more carefully on a point that Clarke is only touching on in the passage, namely, the way in which we apprehend the parts of space. The essential unity of space will be one of the reasons that Kant thinks that our representation of space is an intuition. And he invokes incongruent counterparts in relation to this point.

The Newtonian view is often characterized as the idea that space is like a container in which God places objects.²² This captures well a sense in which space is independent of objects and can be prior to them. But when it comes to Kant’s thought, it will be more adequate to think in terms of ‘*constructing* a body in space’ rather than ‘*placing* a body in space’. This will help to spell out a sense in which space as a whole makes a difference to the composition of bodies.

1.1.2 The Leibnizian view on the nature of space

In contrast to a Newtonian, a Leibnizian argues that space does not exist on its own but that it is something dependent on bodies. More specifically, a Leibnizian proposes a conception of space according to which space is nothing but a certain order among co-existing objects, their *situs* or *situation*. Understood to be nothing but an order, space is taken to be something merely relational. And rather than having an existence on its own, this order is ontologically dependent on the existence of objects. Furthermore, Leibniz argues that space taken as an overall, infinite, and uniform unity is merely imaginary. It is the reification of a representation that originates

²¹ Clarke (1956, 48).

²² Indeed Kant characterizes the view in this way in the *Inaugural Dissertation*, see [ID 2:403].

from the apprehension of the order of co-existents. He explains this idea in his fifth letter to Clarke:

“I will here show, how men come to form to themselves the notion of space. They consider that many things exist at once and they observe in them a certain order of co-existence [...]. This order, is their *situation* [...]. When it happens that one of those co-existent things changes its relation to a multitude of others, which do not change their relation among themselves ; and that another thing, newly come, acquires the same relation to the others, as the former had ; we then say, it is come into the place of the former ; and this change, we call a motion in that body, wherein is the immediate cause of the change. And though many, or even all the co-existent things, should change according to certain known rules of direction and swiftness ; yet one may always determine the relation of situation, which every co-existent acquires with respect to every other co-existent ; and even that relation which any other co-existent would have to this, or which this would have to any other, if it had not changed, or if it had changed any otherwise. And supposing, or feigning, that among those co-existents, there is a sufficient number of them, which have undergone no change ; then we may say, that those which have such a relation to those fixed existents, as other had to them before, have now the same place which those others had. And that which comprehends all those places, is called space. Which shows, that in order to have an idea of place, and consequently of space, it is sufficient to consider these relations, and the rules of their changes, without needing to fancy any absolute reality out of the things whose situation we consider.”²³

Leibniz first introduces the notion of situation as the order among co-existents and then goes on to spell out how the concept of a place is formed with respect to this order.²⁴ In particular, if one co-existent, A, changes its relations to other co-existents, B, C, D, and E, while another co-existent, F, comes to instantiate A's relations to B, C, D, and E, then, Leibniz maintains, it is said that F takes A's place. The notion of space, Leibniz further maintains, is formed on the basis of the notion of place. It is that which contains all these places.

Now Leibniz goes on to argue that place has to be distinguished from the relations of a situation of objects:

“And here it may not be amiss to consider the difference between place, and the relation of situation, which is in the body that fills up the place. For, the place of A and B, is the same ; whereas the relation of A to fixed bodies, is not precisely and individually the same, as the relation which B (that comes into its place) will have to the same fixed bodies ; but these relations agree only. For, two different subjects, as A and B, cannot have precisely the same individual affection ; it being impossible, that the same individual accident should be in two subjects, or pass from one subject to another. But the mind not contented with an agreement, looks for an identity, for something that should be truly the same ; and conceives it as

²³ Leibniz (1956, 69).

²⁴ For an explanation and discussion of Leibniz's conception of *situs*, see De Risi (2019, 247-58). See also De Risi (2007) for a thorough discussion of Leibniz's analysis *situs* and his views on space.

being extrinsic to the subjects : and this is what we call place and space. But this can only be an ideal thing ; containing a certain order, wherein the mind conceives the application of relations.”²⁵

Leibniz argues that the place occupied by two different objects is assumed to be the same whereas the relations that an existent has to other existing things cannot be the same as the relations that a different existent has to the same existing things as the other. Relations can only agree with one another. It is in this moment that Leibniz thinks that our mind forms the notion of place as something that is the same and as something that is extrinsic to the objects. But as this notion is merely the result of the mind's desire to find identity where there is only agreement, a place is only an ideal thing. Thus the view that places are real amounts to a reification; something merely ideal is treated as real. And as space is something formed on the basis of places, the same holds true for space.

Leibniz thinks that the mind's formation of the notion of a place as something extrinsic to objects follows a more general pattern in which the mind, if confronted with accidents that are in the object, introduces a notion of something outside the objects. As a further example, he gives the case of the notion of a ratio:

“I shall allege another example, to show how the mind uses, upon occasion of accidents which are in subjects, to fancy to itself something answerable to those accidents, out of the subjects. The ratio or proportion between two lines L and M, may be conceived three several ways ; as a ratio of the greater L, to the lesser M ; as a ratio of the lesser M, to the greater L ; and lastly, as something abstracted from both, that is, as the ratio between L and M, without considering which is the antecedent, or which the consequent ; which the subject, and which the object. [...] In the first way of considering them, L the greater ; in the second, M the lesser, is the subject of that accident, which philosophers call relation. But, which of them will be the subject in the third way of considering them? It cannot be said that both of them, L and M together, are the subject of such an accident ; for if so, we should have an accident in two subjects, with one leg in one, and the other in the other ; which is contrary to the notion of accidents. Therefore we must say, that this relation, in this third way of considering it, is indeed out of the subjects ; but being neither a substance, nor an accident, it must be a mere ideal thing, the consideration of which is nevertheless useful.”²⁶

Leibniz explains that there are three ways in which the ratio between two lines, L and M, can be conceived. Either it is conceived as an accident of L, i.e., that L is greater, or it is conceived as an accident of M, i.e., that M is lesser, or it is conceived as something abstracted from both, the ratio between L and M. With respect to this third way of conceiving the ratio, Leibniz goes on to argue that it can only be an ideal thing. To be real, it would have to be either a substance or an accident. He implicitly rejects the idea that the ratio is a substance. As for the idea that it might be an accident, Leibniz argues that the ratio would be one accident grounded in two subjects. This, however, would be contrary to the notion of an accident, which can only subsist in one subject.

²⁵ Leibniz (1956, 70)

²⁶ Leibniz (1956, 71)

As we will see, Leibniz's rationale of the way in which relational notions are turned into something extrinsic which can be merely ideal is challenged when it comes to chirality. With chirality there is a property that appears as an accident, but which nevertheless involves some other object outside of it, and indeed necessarily so.²⁷ It thus seems to be indeed one accident with two subjects. In chapter four we will see that Kant comes to think that Leibniz's reasoning here is motivated by his rationalism, and more specifically by the view that matter precedes form. A discussion of this point will have to wait until then. For now the important point to keep in mind with respect to the controversy among Newtonians and Leibnizians is the contrast between the way in which the priority relation between space as a whole and objects is thought, where the Newtonians think that space as a whole precedes bodies, while the Leibnizians maintain that bodies precede space.

1.2 Interpretations of Kant's 1768 Essay

As just explained, the debate between the Newtonians and the Leibnizians turns at least in part on the question over the ontological priority between bodies and space. And here we can see how Kant's essay, in its proclaimed aim of showing that "[a]bsolute space, independently of the existence of matter and as itself the ultimate foundation of the compound character of matter, has a reality of its own" can be read as a contribution to this debate and, more specifically, as a contribution in support of the Newtonian position.²⁸ Many scholars have taken up the essay in this way, and a discussion has ensued over the question of whether and how incongruent counterparts speak the Newtonian position. The discussion has centered on an argument that Kant gives at the end of his essay, which we may call 'the lone-hand argument':

"[I]magine that the first created thing was a human hand. That human hand would have to be either a right hand or a left hand. The action of the creative cause in producing the one would have of necessity to be different from the action of the creative cause producing the counterpart.

Suppose that one were to adopt the concept entertained by many modern philosophers, especially German philosophers, according to which space simply consists in the external relation of the parts of matter which exist alongside each other. It would follow, in the example we have adduced, that all actual space would simply be the space occupied by this hand. However, there is no difference in the relation of the parts of the hand to each other, and that is so whether it be a right hand or a left hand; it would therefore follow that the hand would be completely indeterminate in respect of such a property. In other words, the hand would fit equally well on either side of the human body; but that is impossible."²⁹

²⁷ Note here that we ascribe, e.g., leftness, to a hand as such; we do not think of something as, e.g., 'being lefter than.' We thus treat leftness at least linguistically similar to, e.g., 'being round,' i.e., a shape. This speaks to chirality being an accident. Yet, note that given a left-handed object, we know *a priori* how to construct in three-dimensional Euclidean space a right handed one. This speaks to its relational character, indeed, on account of the apriority, to a *necessary* relational aspect.

²⁸ [DS 2:378].

²⁹ [DS 2:383].

Kant argues that the relational conception of space would leave the object indeterminate with respect to its ‘being left or right’ even though it would have to be determinate in this manner; and such an indeterminacy he argues would be impossible, leading to the seeming absurdity of the hand fitting on either side of the human body.

The claim as to the full determinacy of the lone hand was challenged by several commentators. For example, Peter Remnant, Martin Gardner, and James van Cleve have all argued that Kant begs the question here, and that he has not ruled out the possibility that the hand is only determinate once another object, specifically one of opposite chirality, comes into existence.³⁰

Some interpreters have responded to these charges by arguing that Kant’s overall line of thought is correct. Most notably, Graham Nerlich and Jill Vance Buroker have both argued that the chirality of an object depends on the *orientability* of space rather than the existence of an object of opposite chirality.³¹ A space is orientable if there is no path such that a chiral object can be moved along this path and thereby turned into its counterpart, otherwise it is non-orientable.³² Importantly, the orientability of space is a global property of it, that is, it concerns space as a whole. Thus, showing how incongruence calls for an orientable space draws out the point that space as a whole makes chirality possible.

Nerlich and Buroker’s discussions have been very helpful in clarifying the relationship between the possibility of incongruent counterparts and space as a whole. They are, however, less helpful to our purposes. Given our interest in Kant’s essay is with respect to its relation to the development of his view that space is the form of sensibility, an explanation of the relationship between incongruence and space as a whole that relies on the notion of the orientability of space will not do because this notion draws on a mathematical framework that was conceptually unavailable to Kant.³³ I think an alternative explanation of the relationship between incongruence and space as a whole comes into view if we draw closer attention to the way in which Kant relates the difference between incongruent counterparts to the difference in directions.

1.3 Directions in Space

Before introducing incongruent counterparts, Kant discusses the notion of directions [Gegenden] in space. Kant has specifically six such directions in mind that form three oppositions: front and back, above and below, and left and right. He highlights the notion of direction in its role for certain judgments we make that concern the position of objects, their *situs* in the Leibnizian sense. Specifically, he argues that, in order to make judgements about the position of objects, we first need to make a judgement as to the difference in directions.

Kant first introduces the concept of direction as follows:

“Because of its three dimensions, physical space can be thought of as having three planes, which all intersect each other at right angles. Concerning the things which exist outside ourselves: it is only in so far as they stand in relation to ourselves that we have any cognition of them by means of the senses at all. It is, therefore,

³⁰ Remnant (1991), Gardner (2005), and Van Cleve (1991).

³¹ Nerlich (1991), Buroker (1981).

³² Two dimensional examples of this kind of space are a Möbius Strip and a Klein Bottle.

³³ Others have made this point as well, e.g., Daniel Sutherland (2024).

not surprising that the ultimate ground, on the basis of which we form our concept of directions in space, derives from the relation of these intersecting planes to our bodies. The plane upon which the length of our body stands vertically is called, with respect to ourselves, horizontal. This horizontal plane gives rise to the difference between the directions which we designate by the terms above and below. On this plane it is possible for two other planes to stand vertically and also to intersect each other at right angles, so that the length of the human body is thought of as lying along the axis of intersection. One of these two vertical planes divides the body into two externally similar halves, and furnishes the ground of the difference between the right and the left side. The other vertical plane, which also stands perpendicularly on the horizontal plane, makes possible the concept of the side in front and the side behind.”³⁴

Kant explains how space’s three-dimensionality gives rise to our conception of directions in space. On the basis of the former, we distinguish exactly six directions, above and below, front and back, and left and right.

Grounding the difference in directions in space’s three-dimensionality is noteworthy when it comes to the development of Kant’s views, for he discusses space’s three-dimensionality on several occasions and as early as in his first published work, *Thoughts on the True Estimation of Living Forces* from 1749.

In section nine of the latter, Kant raises the question of how to explain that there are three dimensions in space, a question that arises more acutely for a Leibnizian view than a Newtonian one. Under the Newtonian view, it can be a brute fact that space has three dimensions or it can be something God decided without further reason. But it is not something that calls for an explanation with respect to objects and their properties. Yet for the Leibnizian, the three-dimensionality of space would have to be explained by an appeal to objects and their relations.³⁵

Now at the time of the publication of *Thoughts on the True Estimation of Living Force*, Kant still endorsed a more Leibnizian conception of space. In particular, he thought that space is something grounded in objects and their properties, and he sought to explain space’s existence and features with respect to substances and the force in virtue of which they act on one another as he claims that “[i]t 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.”³⁶

In the next section, §10, Kant goes on to argue that if space arises from the force in virtue of which substances act on one another, then the properties of space, and in particular its three-dimensionality, must be grounded in the properties of this force. And on the basis of this point, he links space’s three-dimensionality to the mathematical character of Newton’s law of universal gravitation, i.e., an inverse-square law:

“I am of the opinion that substances in the existing world, of which we are part, have essential forces of such a kind that they propagate their effects in union with each other according to the inverse-square relation of the distances; secondly, that

³⁴ [DS 2:378f].

³⁵ Buroker makes this point already, see (1981, 39).

³⁶ [LF 1:23].

the whole to which this gives rise has, by virtue of this law, the property of being three-dimensional; thirdly, that this law is arbitrary, and that God could have chosen another, e.g., the inverse-cube, relation; fourthly, and finally, that an extension with different properties and dimensions would also have resulted from a different law.”³⁷

Kant further argues that the inverse-square law is voluntary and due to God’s decision. This is a crucial point, the significance of which we come to appreciate more in the next chapter. As this law is voluntary, Kant notes that there could be other laws and thus other kinds of spaces, that is, spaces with a different dimensionality. He expands on this point in the next section, §11, which in the marginalia is summarized to discuss “[t]he condition under which it is likely that there are many worlds.”³⁸ In regard to this condition, Kant writes the following:

“If it is possible that there are extensions of different dimensions, then it is also very probable that God has really produced them somewhere. For his works have all the greatness and diversity that they can possibly contain. Spaces of this kind could not possibly stand in connection with those of an entirely different nature; hence such spaces would not belong to our world at all, but would constitute their own worlds. I showed above that, in a metaphysical sense, more worlds could exist together, but here is also the condition that, as it seems to me, is the only condition under which it might also be probable that many worlds really exist. For if the only possible kind of space is a three-dimensional one, then it would be possible for the other worlds that I assume exist apart from the one in which we exist to be spatially connected with ours, for the spaces are of one and the same kind. Hence, the question would be why God separated the one world from the other, since he would certainly have imparted a greater perfection to his work by linking them; for the more connection there is, the more harmony and agreement there is in the world, whereas gaps and divisions violate the laws of order and perfection. It is thus not probable (though it is inherently possible) that many worlds exist, unless the many types of space that I have just mentioned are possible.”³⁹

Kant relates space’s three-dimensionality to the identity of a world. The idea is that two worlds of the same space-kind would violate the law of harmony and perfection insofar as their connection would make for a greater harmony among things than their disconnection. Yet if two worlds have different space-kinds, then they cannot be connected. Since a benevolent God acts

³⁷ [LF 1:24f].

³⁸It is worth noting here, though I will not pursue this point, that the question of whether many worlds are metaphysically possible is related to the issues around necessitarianism. According to a necessitarian view such as Spinoza’s, only one world is possible and that is the world that is actual. Thus, an argument that shows that many worlds are metaphysically possible would show Spinoza wrong. An important reason why many philosophers sought to avoid necessitarianism is because it renders freedom in action impossible. Spinoza thinks that our impression of freedom in action is due to our ignorance. See the Appendix to Part 1 of the *Ethics*. For a discussion of the relation between Kant’s interest in incongruence and the avoidance of Spinoza’s necessitarianism see Hogan (2021).

³⁹ [LF 1:25].

such as to maximize harmony, then if there are many possible worlds, they must have different kinds of spaces, that is, spaces of different dimensionality.

We will return to the relationship between space and the unity or identity of a world in the next chapter when we discuss Kant's *New Elucidation*. The noteworthy points for now are that Kant is thinking about the relationship between objects' properties, specifically their force, which concerns their outwards character and the way in which objects interact with one another, on the one hand, and space's properties, specifically its three-dimensionality, on the other, and that he connects space's three dimensionality to the identity of a world.

A further significant instance in which Kant appeals to space's three-dimensionality worth mentioning is in the *Inaugural Dissertation* within his argument that our representation of space is an a priori intuition:

“That space does not have more than three dimensions, that between two points there is only one straight line, that from a given point on a plane surface a circle can be described with a given straight line, etc. – none of these things can be derived from some universal concept of space; they can only be apprehended concretely, so to speak, in space itself.”⁴⁰

Kant argues that we can apprehend that the dimensionality of space is limited to three only in a specific manner, i.e., concretely. He takes this to furnish evidence for his view that our representation of space is an a priori intuition, i.e., representation that is essentially singular. Right after the quoted remark, Kant goes on to discuss the case of incongruent counterparts, which he also takes to support the view that our representation of space is an a priori intuition. Thus, Kant sees a relationship between the phenomenon of chirality and space's three-dimensionality, in their support for a certain character of our representation of space. This character, i.e., that the representation is essentially one, is in turn linked to his earlier considerations of the identity of the world; both are concerned with a certain kind of unity. It thus seems promising to assume that space's three-dimensionality plays illuminates something about the way in which Kant thinks about the relationship between incongruent counterparts and space's unity. And I think the way it does so is with respect to the way in which Kant sees space's three-dimensionality giving rise to differences in direction. But before I will make this more explicit with respect to Kant's discussion of the construction of a counterpart, let us first consider the point that Kant goes on to make about directions.

Kant goes on to argue that the difference in direction figures crucially into our judgments about the spatial positions of things. He discusses a number of concrete examples such as our judgments about the positions of letters on a page so that they constitute something intelligible; judgments over the positions of objects in the heavens as they are relevant to our astronomical and nautical knowledge; judgments over the positions of objects on earth as they are relevant to our geographical knowledge; and judgments over the relations among parts of organisms that we use in order to differentiate certain species. His point is that in all these cases, a judgement about the differences in directions precedes and makes possible a judgement about the outer positions of bodies or the outer relations among parts of matter.

By way of example, let us consider the following passage:

⁴⁰ [ID 2:403].

“Even our judgements relating to the cardinal points of the compass are, in so far as they are determined in relation to the sides of our body, subject to the concept which we have of directions in general. Independently of this fundamental concept, all that we know of relations in heaven or on earth is simply the positions of objects relative to each other. No matter how well I may know the order of the compass points, I can only determine directions by reference to them if I know whether this order runs from right to left, or from left to right. Similarly, the most precise map of the heavens, if it did not, in addition to specifying the position of the stars relative to each other, also specify the direction by reference to the position of the chart relative to my hands, would not enable me, no matter how precisely I had it in mind, to infer from a known direction, for example, the north, on which side of the horizon I ought to expect the sun to rise.”⁴¹

Kant is focusing on cases in which we rely on the differences in cardinal directions in order to determine the correct positions of objects such as the position at which the sun will rise.⁴² He argues that the use of cardinal directions for a determination of the positions of objects depends on an alignment of the order of the directions with our bodies. I have to align, say, north with my looking front, east to my right, south to my back, and west to my left. Only then can I draw on the cardinal directions to determine the correct position of an object.

The issue that Kant is gesturing towards is that the order of the cardinal directions alone does not yet allow me to determine where, say, east is, even if I know where north is. For example, imagine yourself standing in a field before dawn and assume that you know that you are facing north. If I tell you the order of the cardinal directions—that after north comes east, then south, then west, and then north again—this does not allow you to determine where the sun will rise. There is an *indeterminacy* in the way in which the order can be thought to proceed in space. We indicate the difference here as one between proceeding leftwards or rightwards, or, alternatively, clockwise or counterclockwise. According to Kant, I have to tell you that the order of the cardinal directions proceeds to your right hand. Then you know that you have to look to your right to see the sunrise.⁴³

So we see that Kant is considering a certain kind of difference that arises due to space’s three-dimensionality. He first shows the significance of this kind of difference for our judgements over the outer positions of objects, in particular that a judgement as to the difference in direction is presupposed by the latter. This indicates in the first instance that this difference has epistemic significance. This epistemic role could stem from a metaphysical significance though.

⁴¹ [DS 2:379].

⁴² Kant’s focus on the case of the sunrise likely stems from a reflection on the notion of orientation, which goes back to the Latin ‘oriri’ meaning ‘to rise’. As he writes in the essay *What Does it Mean to Orient Oneself in Thinking?*, to orient oneself literally means ‘to find the sunrise’ (see the passage in the next footnote below).

⁴³ Consider here Kant’s essay *What Does it Mean to Orient Oneself in Thinking?* where he writes: “In the proper meaning of the word, to orient oneself means to use a given direction [“Weltgegend”] (when we divide the horizon into four of them) in order to find the others — literally, to find the sunrise. Now if I see the sun in the sky and know it is now midday, then I know how to find south, west, north, and east. For this, however, I also need the feeling of a difference in my own subject, namely the difference between my right and left hands. I call this a feeling because these two sides outwardly display no designatable difference in intuition. If I did not have this faculty of distinguishing, without the need of any difference in the objects, between moving from left to right and right to left and moving in opposite directions and thereby determining a priori a difference in the position of the objects, then in describing a circle I would not know whether west was right or left of the southernmost point of the horizon, of whether I should complete the circle by moving north and east and thus back to south.”[OT 8:134f]

But if this were the case, the metaphysical significance would only concern the objects' position and outer relations in space. But Kant wants to show something more. He wants to show the significance of this difference for *the composition* of objects as well. We can think here of a contrast between *placing* an object in space versus *constructing* it in space. And this is where incongruent counterparts come to play a role.

1.4 Constructing a Counterpart

Before introducing the notion of incongruent counterparts, Kant explains the task that he sets out to address:

“What we are trying to demonstrate, then, is the following claim. The ground of the complete determination of a corporeal form does not depend simply on the relation and position of its parts to each other; it also depends on the reference of that physical form to universal absolute space, as it is conceived by the geometers. This relation to absolute space, however, cannot itself be immediately perceived, though the differences, which exist between bodies and which depend exclusively on this ground alone, can be immediately perceived.”⁴⁴

The idea is to show that the form of a body is not fully determined by the positions of the body's parts relative to one another, but ‘universal space’ also determines something about it. However, the difficulty with space is that the object's relation to it cannot be directly observed. But according to Kant we can observe a difference between certain bodies that rests exclusively on their relation to space. This is when he introduces the notion of incongruent counterparts:

“If two figures drawn on a plane surface are equal and similar, then they will coincide with each other. But the situation is often entirely different when one is dealing with corporeal extension, or even with lines and surfaces, not lying on a plane surface. They can be exactly equal and similar, and yet still be so different in themselves that the limits of the one cannot also be the limits of the other.”⁴⁵

Incongruent counterparts are defined in terms of a perfect equality and similarity between two bodies, and the impossibility of including one body in the same boundaries as the other. With these features, the difference between these objects is said to show that space as a unity makes a difference to the composition of objects. Our goal will be to see how it does that with respect to the way in which Kant explains how to construct a counterpart:

“Now, in order to demonstrate the possibility of such a thing, let a body be taken consisting, not of two halves which are symmetrically arranged relatively to a single intersecting plane, but rather, say, a human hand. From all the points on its surface let perpendicular lines be extended the same distance behind the plane surface, as the points on the surface of the hand are in front of it; the ends of the lines, thus extended, constitute, when connected together, the surface of a

⁴⁴ [DS 2:381].

⁴⁵ [DS 2:381].

corporeal form. The form is the incongruent counterpart of the first. In other words, if the hand in question is a right hand, then its counterpart is a left hand.”⁴⁶

A point to highlight about this construction is the introduction of a plane and the way it is used as a mirroring plane by way of drawing perpendiculars that we produce just as far behind as in front of it. This idea relates back to Kant’s point that we can conceive of three intersecting planes on account of space’s three-dimensionality on the basis of which we form our concept of direction. The set up of the plane and the perpendiculars brings to the fore *the same kind of difference* that is at work when we draw the differences between above and below, front and back, and left and right; and it allows this kind of difference to manifest between the two objects in such a way that the objects are incongruent counterparts of one another. The construction thus illustrates how space affords two unique and genuine alternatives for how a body can be composed.

In order to draw out more clearly that the difference originates from space as a whole, consider, as a first approximation to this point, two alternative ways of thinking about the construction of a regular tetrahedron, i.e., of a triangular pyramid the four faces of which are equilateral triangles. Assume we are given four points *A, B, C, D*. Now assume, as one way of considering such a construction, that we combine these such that *A, B*, and *C* form a regular triangle *ABC*, and, as a final step in the construction, we connect *D* equidistantly to the other points.

We might think that we have formed a fully determined tetrahedron this way. For example, one might observe that since the points must be equidistant from each other to form a regular tetrahedron, all angles are well-defined, they all must be 60 degrees.

However, so far we have considered the construction of a tetrahedron solely with respect to the way in which the parts relate to one another. But imagine, as a second way of considering such a construction, that we carry it out in a three-dimensional Euclidean space. Say we have constructed the regular triangle *ABC*. But now, in order to connect this triangle with the remaining point *D*, *we are confronted with a choice*.⁴⁷ We can do this by placing *D*, say, *above* the triangle or *below* it. Now this choice originates from space. It does not originate from the material, the points *A, B, C, D*, or the way in which we relate this material to one another, i.e., equidistantly. And I maintain that it is this kind of choice that ultimately makes for the difference in incongruent counterparts.

In order to see this, let us first note some other ways to think about this choice. For example, assume that we carry out the construction of the tetrahedron within a Cartesian coordinate system and assume that we have the triangle *ABC* with positive coordinates and such that it lies on the x,y-plane. Now in order to turn the triangle *ABC* into a tetrahedron we can give *D* either a *positive* coordinate or a *negative* one. That is, while we give the exact same magnitude to the line segments connecting *D*, in the Cartesian coordinate system we still have to choose whether to give these segments a positive or a negative valence.

⁴⁶ [DS 2:382].

⁴⁷ Daniel Sutherland also points to the significance of a choice. He imagines a Homer Simpson-style hand, one that lacks the difference between palm and back, and then he argues that there is a choice with respect to the direction in which the fingers of this hand could be curled, and that depending on which direction they are curled, the resulting hands are incongruent counterparts, see (2024, 88). My aim in considering the construction of a tetrahedron is to draw out more clearly that the choice is afforded by space. Furthermore, thinking in terms of construction allows, first of all, to make clear that the issue revolves around thinking of space as a whole that is prior to its parts, and, relatedly, to connect incongruence to Kant’s point that space is a ground of the composite character of objects, which in turn allows one to connect this discussion to Kant’s Critical conception of synthesis.

This way of framing the difference relates the matter to Kant's conception of real opposition and his discussion of negative magnitudes in his essay *Attempt to Introduce the Concept of Negative Magnitudes into Philosophy* from 1763. Some noteworthy points here are that because there is a difference between a positive and a negative valence, two magnitudes, e.g., two moving forces, can cancel each other out. Moreover, it is noteworthy that this kind of difference cannot be grounded in matter or something existent precisely because it forms an opposite that involves a cancellation.⁴⁸

Consider another way in which we can think about the choice that space affords. Say, again, that we have *ABC* constructed as lying on a *x,y*-plane. Then in order to turn it into a tetrahedron, there are *two opposite sides from which we can approach* the triangle.⁴⁹ This way of framing the difference relates the point to Kant's discussion in the *Metaphysical Foundations of Natural Science*, when he writes

“But what is here **the side towards which** the motion is directed? This has a kinship with the following question: On what rests the inner difference of snails, which are otherwise similar and even equal, but among which one species is wound rightward, the other leftward; or the winding of the kidney bean and the hop, where the first runs around its pole like a corkscrew, or, as sailors would express it, against the sun, whereas the second runs with the sun?”⁵⁰

Now, as a next point, note that the construction of a tetrahedron does not itself draw out that this difference in the side from which to approach can make for the difference between incongruent counterparts. For the two constructed tetrahedrons are still superimposable. Consider, thus, again a pair of a left hand and a right one. Something noteworthy about this pair is that they can exhibit not only the opposition between left and right, but they can also exhibit the opposition with respect to the other two directions. For example, in elementary school I was taught the difference between left and right by being told that left is where the thumb is on the right hand and right is where the thumb is on the left hand. This only made sense once I realized that I have to hold fixed the other ways in which I can orient my hands. In particular, I had to hold my hands such that both their palms face downwards and such that both my fingertips face front. So, in order to exhibit the opposition between left and right, my hands have to align with respect to their palms and their fingertips.⁵¹ But I can also align them with respect to the direction in which their thumbs point and with respect to the direction in which their fingertips point. In this case, one might say that my hands exhibit the opposition between above and below.

⁴⁸ Here we can note why this is a problem for a Leibnizian. A Leibnizian thinks that all possible spatial facts can be ultimately grounded in matter. But matter could not ground this kind of opposition. For example, a given magnitude cannot ground that something of an opposite magnitude is possible and that would annihilate the given magnitude.

⁴⁹ I think this way of framing the difference can allow one to draw out the idea that space as a whole is presupposed for the part to be possible. The idea that there are sides towards which something is directed, or from which one can approach suggests that surrounding space is already given. And I think the idea that these sides make for opposites, in particular opposites in an absolute and not just a relative sense, calls for the surrounding space to be infinitely extended. Drawing out that the priority of the whole over the part is possible clarifies in turn the significance of incongruent counterparts for Kant's conception of intuition as will become clearer in chapter three.

⁵⁰ [MFNS 4:483f., bold emphasis mine].

⁵¹ Jonathan Bennett makes this point in his discussion saying that “we use ‘right’ and ‘left’ to express the difference between an object and its incongruous counterpart by fixing directions along two of the object's dimensions and then employing ‘right’ and ‘left’ to make the required distinction in the third dimension.”(1970, 7)

This shows that hands involve space's three-dimensionality in a way that is relevant to the impossibility of superimposing them. Hands involve all three kinds of oppositions in directions that we get in a three-dimensional space. And their incongruence is a matter of them agreeing with respect to two of these oppositions (e.g. both their palms face downward and both their fingertips and wrists align), while disagreeing with respect to the third. But in this manner, that is, in agreeing with respect to two oppositions while disagreeing with respect to one, hands show that the difference in the side towards which something is constructed can make such a difference to the outcome of the construction that two objects cannot be superimposed.

The crucial point to note is thus that there are two ways of constructing an object that are exactly the same but differ solely in regard to the side towards which this construction is made with the result that the two outcomes of the construction cannot be superimposed. The point here is not just that a difference in the construction can make a difference to the outcome. For due to the similarity in the shape of two hands, there is a corresponding sense in which the two hands completely agree with respect to the way in which they are constructed. Rather, it is the same construction but with the sole difference that the construction is executed towards two opposite sides, which leads to the incongruence. And in this sense it is space that makes for the relevant difference because it is space that affords the opposition in sides.

At this point it might be useful to consider a potential objection to the idea that the two hands are incongruent at all. The objection goes back to a remark Wittgenstein makes in the *Tractatus*, and which was taken up by others in later discussions of incongruence:⁵²

“Kant’s problem [...] exists even in two dimensions. Indeed, it exists in a one-dimensional space in which the two congruent figures, a and b, cannot be made to coincide unless they are moved out of this space. The right hand and the left hand are in fact completely congruent. It is quite irrelevant that they cannot be made to coincide. A right-hand glove could be put on the left hand, if it could be turned round in four-dimensional space.”⁵³

Wittgenstein is right that versions of ‘Kant’s problem’ can also be posed for a one- and a two-dimensional space. But he misunderstands Kant’s point insofar as he thinks that it is irrelevant that a left and a right hand cannot be made to coincide because a fourth dimension could be introduced. The significant point for Kant is that a left hand and a right hand cannot be made to coincide in physical space: in relation to my hands, the *thought* of introducing a fourth plane is *a purely abstract possibility*.⁵⁴ As Wittgenstein notes, I can *think* of a fourth dimension. But this would not help me in any way if, say, I need a left glove but only have a right one.⁵⁵ But

⁵² For example, both Gardner (2005) and Van Cleve (1991, 111-20) discuss this line of thought.

⁵³ *Tractatus* Proposition 6.36111. I have followed the translation given in Van Cleve and Frederick’s volume, see (1991, 49).

⁵⁴ I think Brigitte Falkenburg’s emphasis that Kant is concerned with a metaphysical, not a logical question, is important here, see (2020, 94).

⁵⁵ Thanks to Janum Sethi for helping me better appreciate the limits of thought in this case. Sutherland also draws attention to the closely related difference between thought and representing something in intuition. Sutherland explains that we can think of a triangle in general without specifying which sort it is, whether it is equilateral, scalene, or isosceles, see (2024, 92). Though I do not think that the determinations of ‘being equilateral,’ ‘being scalene,’ and ‘being isosceles’ draw out the significance Kant wants to give to intuition, the idea that there is a difference between purely intellectual representation and representation through intuition is highly relevant to the role of incongruent counterparts and it points towards Kant’s criticism on Leibniz for his rationalism.

I think what a consideration of Wittgenstein's point makes clear is that the impossibility of superimposing a left and a right hand has to do with space's three-dimensionality insofar as this is a limited dimensionality.

So far I have mostly emphasized the significance of space's three-dimensionality for this difference and its relation to the notion of direction. But what is important for Kant is that this points to a role of space in its unity. How, then, does the difference between incongruent counterparts relate to space's unity?

A point to note here is how we grasp the difference. Kant argues that we can grasp the difference between incongruent counterparts *only* by trying to superimpose them. And what is important about the superimposition of the objects is that both objects have to be taken to be *in the same space*. If we would construct the counterpart to a given chiral object in a space that is completely independent of the space in which the chiral object is given such that the two objects could not be brought together and tried to be superimposed, then it would be *impossible* to tell that the two hands are different. Though this might not be decisive as it is an epistemological consideration, it still suggests that it matters for the difference between the objects that they are within the same overall space.⁵⁶

I have discussed the sense in which space makes a unique kind of difference for the composition of some kinds of objects. But, one might wonder, how does the case of incongruence hold significance for the composition of objects more generally.⁵⁷

The question is related to a relationist's way of thinking about incongruence. A relationist assumes that an object's form, insofar as it is ascribed to the object itself, is solely determined by the relations among its inner parts. And they think that an object is determinately left or right not in virtue of the relations of its inner parts. Rather, an object is only so determined once another object, specially one of opposite chirality, exists. Thought of in this way, it is unclear that incongruent counterparts should hold any significance for objects more generally.

Now rather than arising due to the existence of another object, the construction of a counterpart shows how the determination can be understood to arise in virtue of the object *being composed in space*. The crucial difference to the relationist's way of thinking is that this accounts for a sense in which chirality concerns the object itself and that it is not a matter of *the existence* of other objects. The disagreement here comes down to whether (i) space is recognized as a ground of determination that figures into the object's form together with the object's material and the relations among the parts, or (ii) whether the form of an object is solely determined by the object's material and the material's relations, but independently of space as a whole. In the second case, incongruent counterparts would be considered a special kind of objects, distinguished from other objects in the way in which their determinations depend on the existence of certain objects. But in the first case, incongruent counterparts are objects that are

There are some other questions raised by the possibility of a fourth dimension. If there was a further dimension, this dimension would afford a further difference in directions in addition to the differences between above, below, front, back, left and right. And so a new version of 'Kant's problem' would arise, namely in the case in which two objects agree with respect to the differences afforded by three of the four dimensions but disagree with respect to the remaining one. To avoid running into a generalized version of 'Kant's problem', we would have to assume that the number of dimensions in space is strictly higher than the ways in which an object can be in space. But here we might wonder, why take our abstract thinking about objects to reveal something about the nature of physical space rather than taking spatial objects to reveal this nature?

⁵⁶ This point will become more decisive for Kant later on when he thinks that space is the form of our sensibility.

⁵⁷ Thanks to Shamik Dasgupta for raising this question.

special only in the way in which they make explicit what is otherwise implicit, namely that space makes a difference to the composition of objects.⁵⁸

1.5 An Inner Difference

After explaining how to construct a counterpart, Kant moves on to the “philosophical application” of incongruence.⁵⁹ The main point he argues is that the difference between incongruent counterparts rests on an inner ground. As has been noticed, Kant’s point is rather cryptic.⁶⁰ Yet it is central to his engagement with the phenomenon of incongruence.⁶¹ We will not yet resolve all issues around this point in this chapter, but for now the goal is to take some notes, and we will return to the claim that the difference is inner in chapter five with respect to Kant’s discussion of incongruence in the *Prolegomena*.

There are two points that Kant makes in support of the claim that the difference is inner. First he argues as follows:

“It is apparent from the ordinary example of the two hands that the shape of the one body may be perfectly similar to the shape of the other, and the magnitudes of their extensions may be exactly equal, and yet there may remain an inner difference between the two, this difference consisting in the fact, namely, that the surface which encloses the one cannot possibly enclose the other. Since the surface which limits the physical space of the one body cannot serve as a boundary to limit the other, no matter how that surface be twisted and turned, it follows that the difference must be one which rests upon an inner ground.”⁶²

Kant points out that two hands are (i) perfectly similar in shape, and (ii) exactly equal in size. As it is clear from his formulation that ‘there may *remain* an inner difference,’ (i) and (ii) are to be understood as inner differences. And one relevant sense in which shape and size are inner concerns the way in which we attribute these to an object as such, independently of its relation to another object.⁶³

⁵⁸ We can note a somewhat comparable way of thinking in Kant’s *Groundwork of the Metaphysics of Morals*, which might be instructive. In the *Groundwork*, Kant focuses on actions done out of duty, and not just done in conformity with duty, in order to draw out the character of an action that exhibits a good will. However, this does not mean that actions done solely out of duty are actions different in kind from actions done in conformity with duty but which have mixed in other inclinations as their determining grounds. The former are just the kinds of actions suitable to exhibit the good will as the ultimate ground of the moral status of the action. Similarly, chiral objects are objects that are not different in kind from other shaped objects. Instead they just uniquely draw out the way in which space is a ground of determination of objects.

⁵⁹ [DS, 2:382].

⁶⁰ Compare, e.g. Carl Hoefer (2000).

⁶¹ Kant holds on to this claim in his later discussions of incongruence. See, e.g. [Prol 4:285f].

⁶² [DS 2:382].

⁶³ One might raise questions over the point that the size of an object belongs to itself. After all, it requires a measuring device, e.g., a meter rod, to determine the size. This might make it seem that size is a relational property and thus an outer one. However, this shows only that the numerical determination of size, i.e., the measure, is relative in this way; it does not show that ‘having a size as such’ is relative. I think that for both Kant and Leibniz, ‘having a size’ ultimately depends on the object’s material constitution.

Let us next note how Kant continues. He points out that incongruent counterparts do not differ with respect to their size and shape, but that there is yet another inner difference between them. This other inner difference, he claims, consists in the fact that the surface which encloses the one cannot possibly enclose the other, and that no matter how we twist and turn a right hand, its surface cannot limit a left one, e.g., a right hand glove does not fit on a left hand.

It is puzzling at first that Kant treats the shape of an object as something different from the surface which encloses or limits it. How might we understand the notion of the surface enclosing an object? In relation to this consider the following point that Kant makes in his concluding remarks of the essay:

“[B]ecause absolute space is not an object of outer sensation, but a fundamental concept, that makes all those first possible, we can discern [vernehmen] that which concerns within the form [Gestalt] of a body solely the relation to a pure space only through the confrontation [Gegenhaltung] with other bodies.”⁶⁴

Kant's point here is that the difference between incongruent counterparts can only be discerned by confronting both with one another. He thinks this due to the difference being grounded in space and that space is a fundamental concept rather than an object of outer sensation.

The idea that we can discern the difference only in a certain way will become more central to his later discussions of incongruent counterparts, as in general he will focus more on our grasp of the difference. But for now we can note the following, especially in relation to the question of what the difference is between (i) objects differing with respect to their shape, and (ii) objects differing with respect to the surface which encloses them. When we ask whether one object can be enclosed within the same boundaries as another or when we compare two objects by directly confronting them with one another, we ask whether one object can play the same spatial role as that of another. We consider the object in a contextual manner and as a part of a whole. We can also note that in confronting two objects directly with one another, we in fact consider them as parts of the same whole, the same overall space. By contrast, what Kant seems to have in mind when he notes that there is no difference in the shape of objects is that they are compared not through a superimposition or direct confrontation - even though this can in most cases show that there is a difference in shape - but rather with respect to those properties that we can discern by considering the object itself, independently of its spatial context.

Now even if we consider an object in a contextual manner, this does not mean that the properties so discerned are properties that it does not have in itself. Rather, they can be taken to be properties that come to have bearing only insofar as it comes to play a role within a whole. Someone might be a great public speaker, but such a property comes only to have bearing if the person is part of a social whole. Nevertheless, this property would be a quality of the speaker themselves.

Here we come to see the first glimpse of the philosophical significance that Kant gives to incongruent counterparts: it is an inner property of objects, which yet only makes a discernible difference if the object is considered as part of a whole. This is significant as it provokes the view that Kant argues later on, i.e., that we can cognize the inner material constitution of an object only if it is considered as part of a whole.

The second point that Kant makes in relation to the claim that the difference is an inner one is the lone-hand argument already mentioned in section 1.2. Recall that Kant asks us to

⁶⁴ [DS 2:383].

imagine that the first created thing was a human hand and argues that this hand would have to be either left or right and that “the action of the creative cause in producing the one would have of necessity to be different from the action of the creative cause producing the counterpart.”⁶⁵ The notion of a single existing hand being left speaks to the point that the difference is inner insofar as it would mean that the hand is not left in virtue of a relation that it bears to some other existing object. But, moreover, the idea that it would require a different creative act of producing a left hand than producing a right one is akin to the idea that space makes a difference to the geometrical construction of an object; it gives the latter metaphysical significance. Kant is thus arguing that space in its unity makes a difference to the possibility of objects.

Now in order to better see why such a metaphysical of space would matter for Kant, we need to first understand a certain issue he takes with Leibniz’s philosophy, which concerns the role of the unity of the world.

⁶⁵ [DS 2:382f].

Chapter 2: The Problem of Unity

Overview

In the first chapter, we saw how incongruent counterparts speak to a certain metaphysical significance of space. The difference between members of a pair of incongruent counterparts reveals that space as a whole precedes objects and figures into their possibility *qua* composites. Our next goal is to understand the significance of this point for Kant's conception of form as it figures into his view that space is the form of sensibility.

Kant introduces the notion of form and presents the idea that space is the form of sensibility for the first time in the *Inaugural Dissertation* from 1770.⁶⁶ And incongruent counterparts make a recurrence in this work. Now in regard to Kant's conception of form the aspect that I want to draw out concerns the idea that the form of sensibility makes for an overall unity that precedes objects and figures into their possibility, and in virtue of which they form one world. Giving significance to this kind of overall unity is the way in which Kant sets his view apart from Leibniz's rationalist view. And I maintain that it is in this respect that incongruent counterparts hold philosophical significance for Kant.

In order to draw out the aspect of form that concerns an overall unity, I want to contextualize Kant's conception of the form of sensibility within an issue that he is dealing with from his early writings onwards. This issue concerns the question of how it is possible that a multiplicity of independently existing substances genuinely interact with one another and form one world. I call this *the problem of unity*. As we will see, this question arises specifically with respect to a Leibnizian system. My point will be that Kant's conception of form as it figures in his view that space is the form of sensibility arises in response to this problem, and it leads Kant to develop a view according to which the material of our cognition is conditioned by the way in which it forms an overall whole – along similar lines to the way in which the body of Socrates has to be already 'in-formed' in order to constitute Socrates' matter, to recall a point from the introduction.

In the following chapter I first, in §2.1, explain the problem of unity and its relation to Leibniz's system. I then discuss two pre-critical writings of Kant's, the *New Elucidation of the First Principles of Metaphysical Cognition* from 1755 (hereafter *New Elucidation*) in §2.2, and *The Only Possible Argument in the Support of a Demonstration of the Existence of God* from 1763 (hereafter *The Only Possible Argument*), in §2.3, both in which Kant takes up the problem of unity. This will pave the way towards the interpretation of Kant's conception of form in the *Inaugural Dissertation* to which I turn in the next chapter.

2.1 Leibniz and the Problem of Unity

The problem of unity concerns the following question: How is it possible for a multiplicity of independently existing objects to form one world?⁶⁷ The issue here is how, on the one hand,

⁶⁶ Most of Kant's discussion of space finds its way into the Transcendental Aesthetic in *Critique*. However, he does not discuss the example of incongruent counterparts in the latter.

⁶⁷ See, e.g., the *Inaugural Dissertation*, for the following statement of the problem: "[T]he only question which our definition [of matter as the parts of a world taken as substances] raises concerns a problem which arises in

things can be independent of one another with respect to their existence, yet, on the other hand, be dependent on one another such as to form one world. The problem is related to the question of whether and how substances can causally interact with one another, a topic that philosophers were struggling with in the early modern period more generally as they were trying to reconcile the newly emerging mechanistic physical theories with traditional beliefs about the relationship between God and the created world.⁶⁸ Causal interaction is a way in which things can form one whole. In particular, being governed by common laws of motion, objects can be said to form one causal system and, on account of that, one world.⁶⁹ Kant was invested in the question about causal interaction among objects. The question of the unity of the world, however, does not concern directly causation, but rather how objects can stand more generally in the kind of relation that would make a causal interaction possible. The question here is how to think about objects' constitution so that they can be assumed to outwardly relate to one another.

The problem of unity, as Kant is taking it up, arises in an acute way with respect to Leibniz's system. In the following section I will explain how Leibniz's conception of a substance calls into question the possibility of all things forming one overall whole, as well as how Leibniz seems to provide an answer to the question about the unity among things with his view that there is a pre-established harmony among them. I will also briefly discuss the attempts of Kant's immediate predecessors to address some of the issues in Leibniz in terms of the notion of a physical influx.

2.1.1 Leibniz's conception of a substance

Leibniz argues that substantial compounds, such as a chair, a tree, a dog, or the embodied Socrates, are grounded in basic, simple substantial unities, which he calls 'monads'. He models his conception of a monad after the idea of the soul or mind, and in particular after the first-person conception one has of one's own mind.⁷⁰ Drawing on this model, Leibniz gives (i) centrality to the absolute unity and indestructibility of those entities that can be assumed to be the ultimate grounds of reality. And he gives (ii) ontological priority to the inner representational states of a substance to all of its other states and qualities.

accordance with reason, namely, how it is possible for several substances to coalesce into one [...], and upon which conditions it depends that this [unity] is not part of something else.”[ID 2:389]

⁶⁸ E.g., Steven Nadler gives the following explanation of the importance of the topic of causality: “The prominence of this topic in seventeenth- and eighteenth-century thought can, in large measure, be traced to a specific historical problem: the need to reconcile an emerging scientific view of the nature world—mechanistic physics—with traditional beliefs about the relation between God and his creation. On the one hand, natural philosophers of the period see their task as one of identifying the underlying causal structures of observed phenomena and of framing explanations in terms of matter and motion alone. On the other hand, it is generally recognized that God is responsible not just for creating the world and its contents, but for sustaining them in existence as well.”(1993, 1)

⁶⁹ E.g. recall here how Kant sees a relationship between the laws of motion, space, and the identity of a world in *Thoughts on the True Estimation of Living Forces* that I discussed in chapter one.

⁷⁰ See the following justification Leibniz gives in *A New System of the Nature and Communication of Substances, and of the Union of the Soul and Body*: “I perceived that it is impossible to find the principles of a true unity in matter alone, or in what is only passive, since everything in it is only a collection or aggregation of parts to infinity. [...] Therefore, in order to find these real entities, I was forced to have recourse to a formal atom, since a material thing cannot be both material and, at the same time, perfectly indivisible, that is, endowed with a true unity. Hence, it was necessary to restore, and, as it were, to rehabilitate the substantial forms which are in such disrepute today [...]. I found then that their nature consists in force, and that from this there follows something analogous to sensation and appetite, so that we must conceive of them on the model of the notion we have of souls.”[AG, 139]

With respect to (i), the absolute unity and indestructibility of monads, Leibniz's reason for giving centrality to these characteristics is that he takes *unity* and *being* to be axiomatically linked. As he writes in a letter to Arnauld, "I hold this identical proposition, differentiated only by the emphasis, to be an axiom, *that what is not truly one being is not truly one being either*."⁷¹ A compound thing as such is not a true unity, and its *being* must be ultimately grounded in something simple.

After considering several models for what might make for a true unity, including mathematical points and material atoms, Leibniz ends up drawing on Aristotle's notion of substantial forms, to which he refers as formal atoms (in contrast to the material atoms of the ancient atomists such as Democritus), as the proper way of conceiving of basic substances:

"It was necessary to restore, and, as it were, to rehabilitate the substantial forms which are in such disrepute today, but in a way that would render them intelligible, and separate the use one should make of them from the abuse that has been made of them. I found then that their nature consists in force, and that from this there follows something analogous to sensation and appetite, so that we must conceive of them on the model of the notion we have of souls."⁷²

Given the notion of a simple substance, Leibniz takes a compound substance to be "nothing more than a collection, or aggregate, of simples."⁷³

With respect to (ii), Leibniz motivates the ontological priority of the inner representational states at least in part by the view that simple, absolute unities are the basic or grounding principles of substances. The simplicity and absolute unity of a monad dictates that it cannot have extension as this would mean that it has parts and is complex after all. But if every monad is simple and absolutely unified, there is a question of how monads are differentiated from one another and how they are individualized. According to Leibniz, they must be so differentiated by internal qualities and actions, which he argues can be nothing but perceptions. Through these perceptions, a monad represents what is composite and external.⁷⁴ In other words,

⁷¹ [AG, 86].

⁷² [A New System, AG 139].

⁷³ [Monadology §2, AG 213]. From an Aristotelian perspective, one might be puzzled by a view according to which a compound being, say Socrates, is composed of an *aggregate* of soul-like, simple entities. For, according to the Aristotelian view, there is one soul that as the form constitutes together with the matter (Socrates' body) the compound substance 'Socrates'. But Leibniz, though drawing on and referring to Aristotle, does not endorse an Aristotelian hylomorphic conception of a substance. Rather, he thinks that a compound being is composed of an infinitude of monads. From this infinitude there is, however, one monad that is dominant; and the dominant monad determines Socrates as Socrates (compare, e.g., §70 of the *Monadology*). One of Leibniz's reasons for taking this view is an assumption that he shares with others, e.g., Anne Conway. Conway thinks that all of reality is constituted by living spirits and thus something active (see, e.g., chapter eight, section four, of *The Principles of the Most Ancient and Modern Philosophy*). Similarly, Leibniz assumes that all bits of matter have a respective underlying principle of activity (compare, e.g., §66 of the *Monadology*). These principles of activity are present in a being composed of several bits of matter, even though they might be only dormant present. Both Conway's and Leibniz's views are informed by the discovery, which came with the invention of the microscope, that activity is involved within even the tiniest bits of observable matter.

⁷⁴ "[A] monad, in itself and at a moment, can be distinguished from another only by its internal qualities and actions, which can be nothing but perceptions (that is, the representation of the composite, or what is external, in the simple) and its appetitions (that is, its tendencies to go from one perception to another)."[*Principles of Nature and Grace, Based on Reason*, AG, 207]

compositeness and externality result from monads' representational states. They are not properties that arise aside or independently of these representational states.⁷⁵

Now even though a monad represents what is external to it, these representations do not result from an interaction with other monads. For monads, according to Leibniz, are windowless beings.⁷⁶ Being in this sorry state, monads are closed off from one another; they cannot interact and lose or acquire any of their accidents.⁷⁷ What might look like an exchange of, say, a motive force, such as when one billiard ball strikes another and sets the latter into motion, is not a genuine exchange or interaction. The only genuine change that a monad can undergo is within the monad itself.

Leibniz conceives of this change within a monad as an unfolding. And what gets so unfolded is the concept of the monad. This relates to another doctrine of Leibniz's tied to his conception of a monad: He argues that a monad is a complete being in the sense that there is a concept in God's understanding corresponding to each monad that is so complete such that it is possible, at least in principle, to deduce through an analysis from this concept all the predicates that can be attributed to the subject that is the monad.⁷⁸ This complete concept can be thought of as a blueprint or a personal score, similar to a musical score, that the monad realizes by way of its unfolding. The existence of a monad can thus be understood as a becoming, where the becoming is a realizing of its complete concept.⁷⁹

Being in a sense complete and unfolding their states through their own causal powers, monads are in a certain sense self-sufficient. They do not rely or draw on any other created thing for the acquisition of any of their states or properties, or for their respective concepts to be extended by any new marks. As Eric Watkins puts it, a substance "has no need for the causal activity of other substances."⁸⁰

Because there is no need for other substances, there is a corresponding sense in which it is possible for a monad to exist alone. And this motivates, at least according to Kant, a certain principle that is generally – though also controversially – attributed to Leibniz, the so-called reducibility principle. This principle holds that the inner properties precede all relational

⁷⁵ Here one can see the sense in which Leibniz is an idealist, rather than a materialist. He thinks extended matter is ultimately grounded in representational states.

⁷⁶ "There is also no way of explaining how a monad can be altered or changed internally by some other creature, since one cannot transpose anything in it, nor can one conceive of any internal motion that can be excited, directed, augmented, or diminished within it, as can be done in composites, where there can be change among the parts. **The monads have no window through which something can enter or leave. Accidents cannot be detached, nor can they go about outside of substances, as the sensible species of the Scholastics once did. Thus, neither substance nor accident can enter a monad from without.** [...] 11. It follows from what we have just said that the **monad's natural changes come from an internal principle, since no external cause can influence it internally** (sec. 396, 400). [*Monadology*, AG, 213f, emphasis mine] and also "[E]ach substance is **like a world apart**, independent of all other things, except for God; thus all our phenomena, that is, **all the things that can ever happen** to us, are **only consequences of our being.**" (*Discourse on Metaphysics*, §14, AG, 47, emphasis mine)

⁷⁷ This implies Leibniz's rejection of a physical influx view: physical influx, i.e., intersubstantial causation, is inconceivable because it is inconceivable how the accident of one substance could be transferred to another, see Watkins (1995, 297).

⁷⁸ "[T]he nature of an individual substance or of a complete being is to have a notion so complete that it is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which this notion is attributed." (*Discourse on Metaphysics*, §8, AG, 41)

⁷⁹ I think this is worth stressing, as it helped me see a point of possible comparison between Leibniz and Hegel in particular with respect to the latter's view that logic coincides with metaphysics. Thanks to Ana Vieyra Ramirez for helping me understand more about Hegel in this regard.

⁸⁰ Watkins (1995, 298).

properties, and that relational properties are merely contingent. A relational property is one that involves another substance and fails if one of the substances, one of the *relata*, does not exist. Now insofar as a monad has no need for other substances to exist, it has no need for any relational properties for its own possibility and existence. And this is the sense in which objects are independent of one another in their existence.^{81 82}

However a puzzle arises at this point. As noted above, Leibniz argues that a monad has perceptions, which he characterizes as “representations of the composite, or what is external.” And Leibniz argues not only that, but that a monad carries within itself marks of the whole universe. He thinks that, just as a city can be represented variously from different points of view, so is the universe as a whole represented by each monad from its unique point of view. But if each monad is closed off from others, how, then, is it in tune with the rest of the universe? And, relatedly, what is the sense in which things together form one world or universe? In other words, it seems that there is a sense in which objects are dependent on one another. Here we then see exactly how the problem of unity arises for Leibniz. However, it seems that Leibniz has an answer that he puts forward, namely that there is a pre-established harmony among things.

2.1.2 Leibniz’s conception of a pre-established harmony

As we just saw, according to Leibniz each monad has perceptions of what is composite and external, and reflects from its own point of view in a certain sense the rest of the universe. Yet monads cannot stand in any kind of causal relation to one another. How, then, do monads obtain the means to represent, or as Leibniz also puts it, to express what is outside of them?

Leibniz argues that they obtained these means from God, *qua* universal cause, upon their creation.⁸³ And because it is a *benevolent* God who gives monads the means to express and perceive what is outside to them, these expressions *perfectly agree* and correspond to one another.⁸⁴ In particular, God attunes any two simple substances to one another insofar as He finds

⁸¹ I have benefited here from Daniel Warren’s discussion of this point in the second chapter of his (2001).

⁸² There is some discussion around whether Kant accepts or rejects the reducibility principle. Some take Kant to endorse it, e.g., James van Cleve in his reconstruction of Kant’s argument in §13 of the *Prolegomena*, see chapter four (1999). However, many agree that Kant rejects the principle. See Demond Hogan’s (2021), especially section two, for a discussion of this point. I will return to this issue in chapter four when I discuss different interpretations of §13 of the *Prolegomena*.

⁸³ “Each of these souls expresses in its own manner what occurs outside itself, and it cannot do so through any influence of other particular beings (or, to put it a better way, it has to draw up [*devant*] this expression from the depths of its own nature); and so necessarily each soul must have received this nature—this inner source of the expression of what lies without—from a universal cause [*cause universelle*], upon which all of these beings depend and which brings it about that each of them perfectly agrees with and corresponds to the others.” [*New Essays* A vi, 6, 440] and “[I]t is very true that the perceptions and expressions of all substances mutually correspond in such a way that **each one**, carefully following certain reasons or laws it has observed, **coincides with others** doing the same. [...] And **God alone** (from whom all individuals emanate continually and who sees the universe not only as they see it but also entirely differently from all of them) **is the cause of this correspondence** of their phenomena and makes that which is particular to one of them public to all of them; **otherwise there would be no interconnection**.” [*Discourse on Metaphysics*, §14, AG 47]

⁸⁴ If the expressions would not perfectly agree, then we would be deceived, and so God would have to be a deceiver. This, in turn, would mean that God is not benevolent.

reasons within each to adjust it to the other.⁸⁵ In this sense, there is a pre-established harmony among things, which for Leibniz is the reflection of a benevolent, single creator.⁸⁶

Kant criticizes Leibniz's conception of a pre-established harmony on various occasions, including in the *New Elucidation*, the *Inaugural Dissertation*, and the *Amphiboly*. As his views on the possibility of a unity among objects develop over the course of these writings, his criticism of Leibniz takes different forms.

In the *New Elucidation*, Kant takes issue with Leibniz's view because it renders the unity a mere agreement among things rather than reciprocal dependency.⁸⁷ In the *Inaugural Dissertation*, Kant gives a more detailed criticism. He contrasts a generally established harmony to an individually established one, where the former occurs due to a common cause and arises in accordance with common rules, while the latter occurs by adapting the state of one substance to another. And he argues that an interaction that arises from a generally established harmony would be *real and physical*, whereas an interaction that arises from an individually established harmony would be *ideal and sympathetic*.⁸⁸

In the *Amphiboly*, Kant emphasizes again the point that the harmony is not a matter of physical influence, which he ties explicitly to the pure internality of things, i.e., each thing's occupation with its own representations. However, in order to contrast Leibniz's view from an occasionalist picture, i.e., one according to which God adjusts to things to one another occasionally rather than generally through laws, Kant describes Leibniz's view as one according to which the interaction and unity among things is due to God making their states corresponding to one another

⁸⁵ "51. But in simple substances the influence of one monad over another can only be ideal, and can only produce its effect through God's intervention, when in the ideas of God a monad reasonably asks that God takes it into account in regulating the others from the beginning of things. For, since a created monad cannot have an internal physical influence upon another, this is the only way in which one can depend on another (*Theod*, sec. 9, 54, 65, 66, 201, Abridgement, objection 3).

52. It is in this way that actions and passions among creatures are mutual. For God, comparing two simple substances, finds in each reasons that require him to adjust the other to it." [*Monadology*, AG 219f.]

⁸⁶ Leibniz argues for a pre-established harmony not only to explain the agreement among independently existing substances, but he first and foremost argues for it in order to explain the seeming interaction between mind and body. I focus exclusively on the first though.

⁸⁷ "There exists a universal harmony of things. Nonetheless, this does not give rise to the well-known Leibnizian pre-established harmony, which is properly speaking agreement between substances, not their reciprocal dependency on each other. For God does not make use of the craftsman's cunning devices, carefully fitted into a sequence of suitably arranged means designed to bring about a concord between substances." [ND 1:415] Kant likely alludes to Leibniz's use of an analogy of two clocks in arguing for a pre-established harmony, though it should be noted that Leibniz employs this analogy to argue for a pre-established harmony between mind and body, compare Leibniz's "Second Explanation of the New System."

⁸⁸ "Now, I call a harmony of this kind [i.e., a harmony arising from the subsistence of substances that is founded on a common cause and which arises in accordance with common rules] a *generally established* harmony, whereas the harmony which only occurs in virtue of the fact that each individual state of a substance is adapted to the state of another substance would be an *individually established harmony*. And the interaction arising from the former harmony would be *real and physical*, whereas that arising from the latter would be *ideal and sympathetic*. Thus all interaction of the substance in the universe is externally established (by means of the common cause of them all). And it is either established generally by means of physical influence (in its more corrected form) or it is obtained individually for the states of each substance. But, in the latter case, interaction between substances is either founded *originarily* through the primary constitution of each substance, or it is imposed *on the occasion* of some change. Of these in turn, the former is called *pre-established harmony* and the latter *occasionalism*." [ID 2:419]

“not [...] through occasional assistance specifically brought about in each case (*system assistentiae*), but rather through the unity of the idea of one cause valid for all, from which, in accordance with general laws, they must all together acquire their existence and persistence, thus also their reciprocal correspondence with each other.”⁸⁹

As we will see shortly, this view is much closer to the view that Kant himself proposes in his *New Elucidation*. This speaks to the point that in the *Critique*, Kant sought to distance himself not only from Leibniz by arguing that there is a real interaction among things. But at the Critical stage Kant also seeks to distance himself from his own early rationalist outlook, especially with respect to the explanatory role given to God for the possibility of the unity.

In any case, we can note that in general Kant takes issue with Leibniz’s conception of a pre-established harmony especially with respect to the way in which it leaves the unity among things a mere agreement or correspondence rather than something that comes about through a genuine interaction.

2.1.3 Physical Influx

Kant’s criticism that the unity is not a real unity might lead to the assumption that he aims for a view that was held by his immediate predecessors and contemporaries, the physical influx view. This view was advanced by some German philosophers including Johann Christoph Gottsched, Martin Knutzen, and August Friedrich Crusius. The notion of physical influx goes back to Christian Wolff, who defines it as the transfer of some reality from one substance to another.⁹⁰

Physical influx theorists attempted to ground the outer interaction among objects in substances. For example Knutzen, a teacher of Kant’s, argues that insofar as a substance has the power to cause a change in its own states, it must have the power to cause a change in the states of other substances.⁹¹

Kant mostly distances himself from the physical influx view. The reason he gives is that substances cannot stand in some kind of interaction with one another in virtue of their existence alone. He thinks that the physical influx theorist assumes this to be possible.⁹² One idea here is that insofar as a physical influx theorist seeks to explain the possibility of interaction in terms of the power to cause a change in its own states, they seek to explain the possibility of interaction in terms of those powers that Leibniz attributes to a substance independently of the existence of other substances.⁹³ But it is important to note here that Kant agrees with Leibniz on the point that substances are independent of one another with respect to their existence. There is thus a sense in which Kant seems to think that the physical influx theorist is not rightly attuned to the whole

⁸⁹(A 274f/ B330f).

⁹⁰ See Wolff’s *Philosophia Rationalis* §558.

⁹¹ See Watkins (1995) for a more detailed discussion.

⁹²As Kant notes in the *Inaugural Dissertation*: “[The theory of physical influence] rashly assumes [...] that there is an interaction of substances and transeunt forces, which can be cognised by means of their existence alone.”[*ID* 2:407]

⁹³ It is noteworthy, though, that Kant argues in the *New Elucidation* that no change can happen to substances unless they are connected with other substances, compare Proposition XII, [ND 1:410]. This already indicates that Kant argues for a certain reversal of the relationship between an individual substance’s states and its relations to other substances.

issue around the interaction and unity among things, as they do not appreciate the independence of substances in an adequate way.

2.2 *New Elucidation* (1755)

As we saw, the problem of unity arises insofar as substances have an existence that is independent of one another. This raises the question in which sense, if at all, they can interact with one another and form an overall unity, a world. Kant gives a prominent place to this problem in *A New Elucidation of the First Principles of Metaphysical Cognition* (1755). In this work he discusses four “principles of metaphysical cognition,” (i) the principle of contradiction, (ii) the principle of sufficient reason, which he refers to as the principle of determining ground, (iii) the principle of succession, and (iv) the principle of co-existence. The first two are core principles of Leibniz’s philosophy. The latter two are principles that Kant introduces. Though he thinks that these latter two are not fundamental as the first ones, he also thinks that they are “of an importance not to be despised.”⁹⁴

The problem of unity concerns specifically the fourth principle, which states the following:

“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.”⁹⁵

The principle itself states the problem of unity in its first part, and it postulates as a solution that the divine understanding as the common principle of the existence of substances maintains objects in a unity. Before getting more clear on his solution, let us first see how Kant explains the problem.

2.2.1 The problem of unity in the *New Elucidation*

Kant argues that substances do not stand in a relationship with one another that would enable an interaction in virtue of their existence alone because the existence of a substance is intelligible independently of the existence of other substances. That is, he argues that substances are ontologically independent of one another because the existence of a substance “can be completely understood independently of all other substances.”⁹⁶ Now a relational predicate, which would have to be attributable to substances if they are to form an overall unity, requires

⁹⁴ [ND 1:387].

⁹⁵ [ND 1:412f].

⁹⁶ [ND 1:413].

for its intelligibility the existence of the things that are related.⁹⁷ And so a relational predicate, as well as the overall unity among substances, cannot be grounded in the existence of substances.

It is worth considering what Kant takes to be required for a relational determination to be possible. He thinks that it requires that the causal power of one substance, A, be the ground of a determination within another substance, B. This can be contrasted to the following conception of a relation: Assume substance A has some power that gives rise to a determination p of A; and assume that there is a power in B that gives rise to a determination q in B; now A and B might be related on the basis of their respective determinations p and q.

The contrast between these two conceptions is that there is a sense in which things are related on a deeper level according to the first conception, while the latter conception of a relation is more akin to the idea of a “Cambridge change”. For assume that A and B are said to stand in relation R due to their respective properties p and q. To make the point more concrete, assume R is ‘being taller than’, p is ‘being five feet’ and q is ‘being 6 feet’. Now something might change about B, namely R, without any change in B itself, i.e., without a change with respect to q, but with a change in A. A might grow, become 7 feet such that B loses the property of ‘being taller than A.’⁹⁸ However, according to Kant’s conception of a relation, a change in the relation between A and B would have to involve a change in B itself, namely a change in q. We can thus note that there is a sense in which Kant aims for a deeper sense in which things are related and form an overall unity.

2.2.2 An early solution: a divine schema

As the unity among substances cannot be grounded in their existence, Kant argues that it must be grounded in their dependence on God *qua* universal and common principle of all beings.⁹⁹ He conceives of this dependence relationship in terms of a *schema*, something comparable to a plan.¹⁰⁰ He explicates this notion in more detail as follows:

⁹⁷ “[I]f substance A exists, and if, in addition, B exists, then this latter can be considered as positing nothing in A. For suppose it determined something in A, that is to say, suppose that it contained the ground of a determination C. Since this is a kind of relative predicate and hence not intelligible unless A is present, in addition to B, it follows that substance B will, in virtue of those factors which are the reasons of *τὸν* C, presuppose the existence of substance A. But since, if substance B existed alone, its existence would leave it completely indeterminate whether a certain substance A would have to exist or not, it will be impossible to understand from the existence of B alone that it posits anything in other substances distinct from itself. Hence there is no relation and no interaction at all. If, therefore, God had created, in addition to substance A, other substances B,D,E, and so on to infinity, their reciprocal dependency on each other in respect of their determinations would, nonetheless, not immediately follow from the fact of their existence.”[ND 1:413]

⁹⁸ Alternatively consider the following case: Climbing from place 15 to place 10, Germany ranked better with respect to its Corruption Index determined by Transparency International in 2025 than in previous years. This change, however, had been due to other countries becoming more corrupt, and not because Germany became more honest or law-abiding.

⁹⁹ “Since [...] in so far as each individual substance has an existence which is independent of other substances, no reciprocal connection occurs between them; and since it certainly does not fall to finite beings to be the causes of other substances, and since, nonetheless, all the things in the universe are found to be reciprocally connected with each other – since all this is the case, it has to be admitted that this relation depends on a communality of cause, namely on God, the universal principle of beings.”[ND 1:413]

¹⁰⁰ Kant’s notion of a schema here has a certain kinship with the model of Plato’s demiurge in the *Timaeus*, and Conway’s notion of a middle substance.

“The schema of the divine understanding, the origin of existences, is an enduring act (it is called preservation); and in that act, of any substances are conceived by God as existing is isolation and without any relational determinations, no connection between them and no reciprocal relation would come into being. If, however, they are conceived as related in God’s intelligence, their determinations would subsequently, in conformity with this idea, always relate to each other for as long as they continued to exist. That is to say, they would act and react; and the individual substances would have a certain external state. But if you abandoned this principle, no such state could exist in virtue of their existence alone.”¹⁰¹

A schema is God’s enduring act of conceiving of things. Importantly, in virtue of employing a schema God conceives of things not just as such, but *in a certain way*. By employing one specific such schema, God can thus conceive of things *as related* and *as forming one*.¹⁰²

Kant further argues that the schema involves an element of choice. God can decide to conceive of substances as existing in isolation, in which case things would have no external character and no connection would be possible. Alternatively, God can conceive of things as related, in which case things do have an external character and can connect with one another. In this latter case, things form a genuine unity, a unity in the deeper sense spelled out above.

On the basis of the idea that God can choose between different schemas, Kant also argues that there can be different possible worlds according to God’s choice:

“There could be, if God so willed, a number of [...] substances, free from any connection with our universe, but, nonetheless, linked with each other by means of a certain connection of their determinations so as to produce place, position, and space: they would constitute a world banished beyond the limits of the world, of which we are parts, that is to say, they would constitute a solitary world. For this reason, the possibility that there might be, had it so pleased God, a number of worlds, even in the metaphysical sense, is not absurd.”¹⁰³

We have already come across Kant’s earlier considerations on the topic of whether a multiplicity of possible worlds is metaphysically absurd or not. In the last chapter, we took up this question in relation to Kant’s discussion of space’s three-dimensionality in his first published work, *The True Estimation of Living Forces*. Recall that in *True Estimation*, Kant argues for the multiplicity of worlds on the basis of the idea that there could be other laws than the inverse square law, which would give rise to other kinds of spaces than a three-dimensional one. And we noted then that the nature of the universal law governing objects’ actions on one another and the nature of space that Kant argues would arise from this law accounts for the identity or the unique character of a world. With the notion of a schema, Kant now introduces in the *New Elucidation* the idea that

¹⁰¹ [ND 1:413].

¹⁰² Kant’s view that there is a schema in virtue of which God can conceive things as one complicates Desmond Hogan’s claim that “precritical works uphold the ontological priority of simple substances over the world resulting from their interaction, describing the world as an “actually composed thing.”(2021, 410) Though Hogan is right insofar as the actual unity of things is something that comes about only through substances’ interactions and is therefore ontologically posterior to them, there is already a possible unity among substances that is grounded in God’s schema and that is due to God’s conception of things.

¹⁰³ [ND 1:414].

there is some kind of principle that originates from God's understanding, which would ground the identity of a world. In other words, a schema explains the unique character of a world.¹⁰⁴

The crucial aspect of the idea of a schema that sets it apart from Leibniz's view of a pre-established harmony lies in the point that the unity arises due to the *dependence relation of things on God*, specifically God's creative act. Grounding the unity in this relation, the unity has the same ontological status as substances' existence. Importantly, the unity is not contingent on the independent existence of substances. Rather, substances are said to have a dual character, an inner one that concerns their independent existence, and an outer one.¹⁰⁵

2.2.3 Kant's divine schema vs. Leibniz's pre-established harmony

We already touched in the previous section on Kant's criticism of Leibniz's pre-established harmony where we noted that Kant wants to argue for a genuine reciprocal dependency as opposed to the mere agreement he sees Leibniz as arguing for. The important point to see is that Kant thinks that there is a deeper unity among things. He wants to show that there is a sense in which things are dependent on one another in their possibility while sustaining a sense in which they are independent of one another in their existence. In the *New Elucidation* he is trying to solve this by arguing for a genuine dual character of objects; objects have an inner character, but, *pace* Leibniz, they also have a genuine outer one (and not just an apparent one that is merely representational and ideal). And things are independent with respect to their inner character, but they are dependent on one another with respect to their outer character.¹⁰⁶

We can also note that, whereas for Leibniz the unity among things is ultimately grounded only in God's benevolent adjustment of objects' representational states to one another, Kant grounds the unity in the causal dependence relation of things on God. So, again, the same act that gives existence to things, also gives them unity.

As we will see next, Kant goes on to investigate the dependence relation of things on God more carefully. One crucial step that he takes in *The Only Possible Argument* is to consider the modal character of the unity, so whether the unity is necessary or contingent. And, after arguing that the unity is necessary, he draws new conclusions about the dependency of things on God, in particular that their unity is not a matter of choice.

2.3 *The Only Possible Argument* (1763)

In *The Only Possible Argument* Kant's overall goal is to offer a proof strategy for a demonstration of the existence of God that is based on the idea that God is the absolutely

¹⁰⁴ This will be helpful to keep in mind when we turn to Kant's conception of form later on.

¹⁰⁵ It is still noteworthy though that the outer character is a matter of a different kind of choice for God than the inner nature of things. For the choice with respect to the inner nature would be to either create or not to create. But with the outer character, the choice is, create in one way, or create in another way.

¹⁰⁶ Kant's views on the relationship between an object's inner and outer determinations change significantly in the Critical period. He comes to argue that when it comes to the objects of our cognition, the inner determination of objects is only possible through their outer determination, where an inner determination is one that we attribute to an object itself. Kant also comes to argue that we cannot cognize the absolutely inner nature of things, that is, the nature that they have independently of the possibility of other objects. I think that Kant's view on the relationship between the inner and outer determinations is very much motivated by the role that space comes to play for the possibility of objects.

necessary ground of all possibility. As part of this goal, we can see him investigating more critically the way in which things can be understood to depend on God. And with respect to the latter, we can see Kant registering some dissatisfaction with the Leibnizian way of understanding this dependence relationship. For our current purposes there are two points that stand out about the Leibnizian conception of the dependence of things on God. First, according to the Leibnizian conception of God's supreme reality, they attribute to God all realities *as determinations*, where a determination is that in virtue of which something can be cognized. Second, insofar as according to Leibniz God chooses the best of all possible worlds, the character of a world is a matter of God's will and His benevolence.

We will see that Kant challenges Leibniz on both these points. With respect to the first point, he argues that not all determinations of objects can be attributed to God, but some must be mere consequences of Him. And in regard to the second point, he argues that there is a necessary unity among things which, on account of this modal character cannot be due to God's choice. It is worth highlighting at this point that both of these claims pave the way for a view according to which space figures into objects' character in a way that makes them cognizable for us. That is, these claims play a crucial role for Kant's Critical view that our capacity of understanding is conditioned.

In the following paragraphs I will first discuss Kant's criticism of the Leibnizian view on God's supreme reality. I will then turn to Kant's argument that there is a necessary unity among things, as well as to the conclusion he draws from this, i.e., that things do not depend on God's will with respect to their outer character.

2.3.1 God's supreme reality

Overall *The Only Possible Argument* is divided into three main sections. In the first section, Kant presents an a priori approach for a demonstration of the existence of God. In the second he presents an a posteriori approach. And in the third section he argues that no other possible proof that the one he put forward can be adduced.

In the first section, after arguing that a necessary being, the cancellation of which would eradicate all possibility, exists, Kant discusses various attributes of this necessary being such as its uniqueness, its simplicity, its immutability and eternity, as well as its supreme reality. And it is with respect to the latter, God's supreme reality, that he draws out a certain issue for the way in which the Leibnizians conceive of the dependence relation of things on God.

Kant argues that all reality is in one way or another embraced by the necessary being, i.e., God. This was traditionally understood such that all possible realities or predicates are included among God's determinations. But Kant registers a certain issue with this view. He argues that by no means can all predicates co-exist together as determinations within a single subject and that a confusion has appeared to justify this idea: "It is said: reality and reality never contradict each other, for both of them are true affirmations; as a consequence, they do not conflict with each other in the subject either."¹⁰⁷

Against the view that reality and reality can never contradict each other, Kant argues that a certain opposition is possible between realities, which, though it implies an annihilation, is still in an important sense something possible:

¹⁰⁷ [OPA 2:86].

“The motive force of a body in one direction and an equally strong tendency in the opposite direction do not contradict each other. They are also really possible in one body at the same time. However, one motive force annihilates the real consequences of the other motive force; and since the consequences of each motive force by itself would otherwise be a real movement, the consequence of both together in one subject is nought. That is to say, the consequence of these opposed motive forces is rest. But rest is, indubitably, possible.”¹⁰⁸

Kant emphasizes here the point that rest is something possible because according to the Leibnizian view, the only kind of opposition considered is a logical contradiction, the result of which is something impossible.

Kant goes on to explain that in God no opposition can be possible among His determinations, including the opposition that leads to a cancellation, such as the one described between motive forces leading to rest. But he thinks this latter kind of conflict would be bound to happen if all realities were indiscriminately attributed to God as His determinations. On the basis of this, Kant argues that some determinations must be *mere consequences* of God.

The noteworthy point about this is that Kant identifies a certain marker of determinations that have the status of being mere consequence. They are determinations that admit of a real opposition. This is noteworthy because, first of all, the possibility of forming a real opposition rests on the possibility of opposition in direction, which, as noted in the last chapter, is the same kind of difference that we find in incongruent counterparts, and which is grounded in the overall unity of space. Secondly, Kant will come to argue that insofar as space is the form of our sensibility, the objects of our cognition are mere appearances. Appearances are objects that are in an important way dependent on us and that are different from things as they are in themselves. This suggests that part of the reason that Kant thinks that we cannot cognize things as they are in themselves has to do with the way in which the properties of the objects of our cognition admit of real opposition and that they can exhibit chirality.

2.3.2 A necessary unity

Turning to Kant’s argument that there is a necessary unity among things, he motivates the idea for such a unity with respect to two cases, one drawn from geometry and one from mechanics. With respect to the geometrical case, Kant wants to show that “order and harmony, along with [space’s] necessary determinations, prevail throughout space, and [...] concord and unity prevail throughout its immense manifold.”¹⁰⁹ He discusses the construction of a circle in order to illustrate the kind of order and harmony that he has in mind. One would not expect, Kant maintains, that the production of a bounded space by moving a straight line around a fixed point conceals such rules as the rule “that all the straight lines which intersect each other inside a circle at any given point, when they are extended to its circumference, are always divided in

¹⁰⁸ [OPA 2:86]. Kant develops the notion of real opposition in more detail in his essay *Attempt to Introduce the Concept of Negative Magnitude into Philosophy* which was published in the same year, 1763, as *The Only Possible Argument*.

¹⁰⁹ [OPA 2:93].

geometrical proportion.”¹¹⁰ Even though this case is drawn from geometry and promises to shed light on Kant’s view of space, the second case turns out to be more revealing.

With respect to the mechanical case, Kant wants to show that there is a necessary unity among things that is grounded in their material nature, i.e., the nature of objects in virtue of which Kant thinks that objects are governed by universal laws and in virtue of which they act on one another. To this end, he first contrasts in more general terms two ways in which a harmony among things can be brought about, one leading to a contingent unity and the other to a necessary one. As for the first case, Kant writes:

“If we discover an arrangement in nature, which seems to have been instituted for a special purpose, since the general properties of matter on their own could not have produced such an order, then we regard this provision as contingent and as the product of choice. Now, if new harmony, order and usefulness should make their appearance, along with mediating causes especially instituted to produce these effects, then we judge them in the same way to be contingent and the product of choice. This connection is quite alien to the nature of the things themselves. They stand in this harmonious relation simply because someone has chosen to connect them in this way.”¹¹¹

A contingent arrangement – an example of which, Kant notes, would be the sheathed character of a lion’s claws – is one that seems to be instituted in regard to a special purpose – e.g., to keep claws sharp and prevent them from wear and tear. And any additional or newly discovered order and harmony is also explained in regard to this purpose. Since such a unity seems to serve a specific purpose, we regard it as the result of a choice. But such a unity, Kant claims, is not grounded in the nature of things.

A contingent unity is most likely the kind of unity that Kant would see Leibniz attributing to things. As discussed earlier, according to Leibniz’s conception of a substance, things do not form an overall whole in virtue of their nature, since they are isolated from one another by their nature. Furthermore, according to Leibniz’s notion of a pre-established harmony, the unity and order among things is the result of God’s choice.

Now Kant contrasts to this notion of a contingent arrangement the following kind of unity:

“But suppose that matter has certain properties of a more general character, which, in addition to producing certain benefits which may be construed as their *raison d’être*, are also particularly suited to producing even more harmony, and doing so without the least provision being made to bring it about. Suppose that a simple law, which is universally agreed to be necessary for the production of a certain good, also produces fruitful effects in many other ways as well. Suppose that that simple law was the source of further usefulness and harmoniousness, not by art, but rather of necessity. And suppose, finally, that this should hold throughout the whole of material nature. If all this were supposed, then there

¹¹⁰ [Ibid.]. This is Proposition 35 of Euclid’s *Elements*, Book three. See Alison Laywine’s (2014) for a discussion of this passage and its connection to later, closely related ones in the *Prolegomena*, the *Critique of Pure Reason*, and the *Critique of Judgment*.

¹¹¹ [OPA 2:96].

would obviously inhere in the very essence of things themselves universal relations to unity and cohesiveness, and a universal harmony would extend throughout the realm of possibility itself.”¹¹²

Kant wants to suggest that another kind of unity can be found, one which, in addition to having a certain kind of benefit that might well be taken as the ground of its existence, its *raison d'être*, is also liable to produce even more harmony but without any further provision. Rather than being explained with respect to a specific purpose, the unity is explainable by the material properties of things and their lawful character. Such a unity would be necessary and would be grounded in the nature of things.

Now Kant argues that the atmosphere shows that there is such a necessary unity. He starts off assuming for the sake of argument that the atmosphere's "*raison d'être*" is to render possible the respiration of humans and animals. And he goes on to point out that the same properties that make respiration possible also produce other benefits, all without any other special provisions. Respiration, Kant argues, is made possible by the elasticity of air. Pointing to elasticity is important. Kant takes this property to be a universal property of matter, governed by universal laws, that it has in virtue of filling a space.¹¹³ He continues to argue that the same elasticity that makes respiration possible makes suction possible. And suction, in turn, makes possible the nourishment of young animals, as well as pumps. Furthermore, air's elasticity makes possible that "moisture is drawn up from the earth in the form of vapours which condense into clouds, which enhance the beauty of the day and often moderate the excessive heat of the sun."¹¹⁴ And it makes possible the dawn, which renders the transition from night to day harmless to the eye. Another crucial feature comes from elasticity operating in accordance with the general laws of motion to make possible an alternation of winds, i.e., that a wind changes its directions. This has the benefit that certain areas are cooled down by this wind when they get hot during the day, but not at night when the temperature goes down.¹¹⁵

Now on the basis of the elasticity of air, Kant argues that the internal possibility of matter is not given independently or for itself. "The internal possibility of matter is, rather, posited by some principle or other. And in virtue of this principle, what is manifold acquires its unity, and what is diverse receives its connection."¹¹⁶ This common principle, Kant argues, must stem from God. Crucially, insofar as the unity is grounded in the nature of things it must originate from the nature of God, not from His will. In order to make this contrast clearer, Kant introduces a distinction between two kinds of dependencies on God, moral and non-moral dependency.

¹¹² [OPA 2:96].

¹¹³ See Warren (2001) for a discussion of Kant's dynamical conception of matter.

¹¹⁴ [OPA 2:97].

¹¹⁵ This last example is especially noteworthy as the harmonious relationship depends on a *change in direction*. This indicates that 'being in the same space' plays a role for the possibility of this benefit, though Kant does not make this explicit.

¹¹⁶ [OPA 2:99f].

2.3.3 Moral vs. non-moral dependence

In accordance with the contrast between a contingent and a necessary unity, Kant contrasts two ways in which things can be said to depend on God. Things depend on God *morally* when God is the ground of that thing through His will. Otherwise, they depend on Him *non-morally*.¹¹⁷

Now Kant admits that things exist insofar as God wills them to exist. And so the dependency of things on God with respect to their existence is always moral. However, he argues that insofar as things depend on God with respect to their possibility, this dependence is not a matter of God's will. "[F]or the will makes nothing possible; it merely decides upon what is already presupposed as possible."¹¹⁸ And so things depend on God in a non-moral way when it comes to their possibility.

Kant thinks that it is the non-moral dependency that explains the necessity of the unity. For, a moral dependency, being a matter of God's will, is a matter of free choice. And for this reason such a dependency renders the dependent thing, the unity, contingent. But as Kant argued, the unity with respect to the different consequences that result from the elasticity of the atmosphere is necessary. And so this kind of unity must be non-moral.

Thus, Kant comes to think that God's nature gives a certain overall character to the world, i.e., a harmonious character in virtue of which things form a necessary unified whole. This contrasts to the notion of a schema that Kant introduced in the *New Elucidation* especially with respect to the way in which the schema was said to depend on God's choice.¹¹⁹

2.4 A Brief Summary

Before moving on to a discussion of the *Inaugural Dissertation*, it is worth briefly summarizing the issue so far. For Kant there is a question about how it is possible for a multiplicity of independently existing things to interact with one another and form a unity. He thinks that there is a deeper unity among things other than a mere agreement which is all that Leibniz's pre-established harmony would amount to in his view. As he comes to think that this unity is necessary and must concern the material nature of things, he comes to think that this unity cannot be explained in terms of God's will and choice; rather, he argues that the unity originates from God's nature.

We also saw not only that Kant takes issue with a Leibnizian understanding of the dependence relation of things on God with respect to the conception of a pre-established harmony, but that he also criticizes the way Leibniz takes all properties, or determinations of objects are taken to be grounded in God. Kant argues that the view that all properties are grounded in God as His attributes would mean that properties cannot be in a certain kind of opposition to one another. Kant thinks that some properties should thus be understood to be *mere consequences* of God. Both the issue around the necessary unity among things and the issue over the opposition between determinations call for a different conception of the grounds of the possibility of objects.

¹¹⁷ See, [OPA 2:100].

¹¹⁸ [OPA 2:200].

¹¹⁹ One question that arises here though is whether Kant changes his view with respect to the question of whether other worlds are metaphysically possible. For it seems that insofar as the unity of the world stems from God's nature, there is no room for other possible worlds as God has only one possible nature.

As we saw in the first chapter, Kant comes to think that space in its overall unity is a ground of the possibility of objects. This suggests that space can explain how objects form an overall unity and that they can have properties that can be in opposition to one another. It thus seems that the issue with Leibniz's view is that it does not recognize the significance of space for the possibility of objects.

Yet the underlying metaphysical picture according to which space is a ground of the possibility of objects is rather unclear. In particular, Kant seems to want to avoid the view that space is such a ground of possibility by conditioning God's nature in any way. Now one significant step that Kant undertakes in the *Inaugural Dissertation* is to think of objects not only in their relation to God, but also in relation to us, as objects of our cognition. This allows him to develop an alternative conception of the possibility of objects, where if taken as objects of our sensibility, they can be conceived of as something conditioned by space.

Chapter 3: Kant's Conception of the Form of Sensibility in the *Inaugural Dissertation*

Overview

Kant's overall aim in the *Inaugural Dissertation* is to identify the 'principle of the form' of the world. The principle of the form of the world, he explains, is "that which contains the ground of the universal connection, in virtue of which all substances and their states belong to the same whole which is called a world."¹²⁰ He identifies two such principles, one of the sensible world and one of the intelligible world. He argues that space and time are the forms of the sensible world and that their ultimate principle or ground is our sensibility. And he argues that the form of the intelligible world is the real unity in the conjunction of substances, the ultimate principle of which is God. While the points about space and time being the forms of our sensibility find their way into the *Transcendental Aesthetic*, Kant revises his view significantly in regard to the intelligible world in the *Critique* as he comes to think that our understanding is conditioned by the forms of sensibility.

The goal of this chapter is to show how Kant's conception of form as he sets it out in the *Dissertation* relates to the problem of unity, and how this context brings to the fore the philosophical significance of incongruent counterparts. To this end, I first show, in section 3.1, how the notion of form that Kant introduces is in continuation with both the notion of a schema as he employs it in the *New Elucidation*, and the view that there is a necessary unity among things as he argues in *The Only Possible Argument*. In 3.2, I discuss the way in which Kant contrasts the sensible and the intelligible and then turn to his claim that space is the form of our sensibility in section 3.3. In section 3.4 I turn to Kant's discussion of incongruent counterparts in relation to the latter claim, and I briefly discuss Kant's views on the form of the intelligible world in section 3.5.

Before turning to the material of the *Dissertation*, we should take note of an important change in Kant's overall approach though that sets his discussion in the latter apart from his earlier investigations. As we saw in the previous chapter, in his early writings, Kant thinks about reality as the object of God's conception, where this conception is a creational act. But in the *Dissertation* he thinks about *our* conception of reality, a conception which differs from God's in that it is receptive, not creative.¹²¹ The receptive nature of our cognition relates to the role that our sensible capacity plays for our cognition. So, unlike God who, in conceiving of things, creates them by this conception, we conceive of things only insofar as we receive material for our cognition by means of our sensibility.¹²² Consequently, by turning away from God's cognition towards our's, a crucial step that Kant undertakes in the *Dissertation* is to give

¹²⁰ [ID 2:398].

¹²¹ This change is especially important in light of the onto-epistemological change – that is, the change in theorizing about the nature of the objects of our cognition – that Kant argues for in the *Critique*, i.e., his Copernican revolution. This revolution is the change from thinking of the objects of our cognition as conforming to us rather than, what Kant argues was traditionally assumed, that our cognition conforms to objects.

¹²² One noteworthy point about this change that I do not have the space to discuss concerns Kant's claim in *The Only Possible Argument* that some determinations are merely dependent on God but cannot be ascribed to God Himself. The change from thinking about reality in relation to God to thinking about reality in relation to us involves a change from thinking about objects' determinations as being *merely dependent* to thinking of them as being *merely apparent*, in Kant's technical sense of appearance, i.e., properties of mere appearances.

explanatory significance to our sensibility for reality's character as an object of cognition. This change in approach and the idea that our sensibility has explanatory significance for reality's cognitive character, is closely related with the issues Kant takes with the Leibnizian view and Kant's coming to think that space and time have a certain metaphysical significance. For, on the one hand, Kant thinks that space has metaphysical significance, but on the other, *pace* Kant's own claim in his 1768 essay that space has a reality of its own, there are good reasons to think that space is not a real entity. Kant points to these reasons in the *Inaugural Dissertation* when he writes that those who defend the reality of space and conceive of it as an absolute and boundless receptacle of possible things invent "an infinite number of true relations without there being any beings which are related to one another."¹²³ I think it is in order to address this tension between thinking that space as a whole figures into the possibility of objects and thinking that space as a whole cannot exist as such that Kant is moved towards an idealist view.

3.1 Kant's Conception of a World

The *Dissertation* is divided into five sections. After introducing his conception of the world in the first section, Kant discusses the distinction between sensible and intelligible things in the second section, and then turns to the form of the sensible world in the third, and to the form of the intelligible world in the fourth. In the final section, he discusses the method in metaphysics as it concerns the sensible and the intelligible.

Focusing on the first section, Kant starts out with a definition of the world as the inverse of a simple. A simple, he explains, is a part which is not a whole. A world, by contrast, is a whole which is not a part.¹²⁴

This definition of a world stands out if compared to Leibniz's view. As we saw in the last chapter, Leibniz's conception of reality centers on the notion of a simple, and for the most part he puts aside consideration of the unity of the world as something that is relevant to reality's basic constitution. Kant's definition puts the unity of a world on a par with the unity of a simple, and indeed in such a way that both are conceptually interrelated.

Yet, Kant's idea to give philosophical significance to the world is somewhat Leibnizian in spirit. As I explained earlier with respect to Leibniz's notion of a substance, Leibniz saw a need to bring back the Aristotelian notion of a form in order to adequately capture the nature of the unity of an absolutely simple being. Now, Kant, in a similar vein, sees a need to bring back the same traditional Aristotelian framework in order to characterize the unity of a world. This becomes clear when Kant, after giving the above definition, continues to spell out the notion of a world in hylomorphic terms, distinguishing its matter, its form, and its entirety.

According to the hylomorphic definition of a world, a world's *matter* is the substances that, as a plurality, make up a world. Crucially for our purposes, in his explication of matter, Kant raises explicitly the problem of unity:

"MATTER (in the transcendental sense), that is the parts, which are here taken to be substances [is one factor which requires attention in the definition of a world].

¹²³ [ID 2:404].

¹²⁴ "In the case of a substantial compound, just as analysis does not come to an end until a part is reached which is not a whole, that is to say a SIMPLE, so likewise synthesis does not come to an end until we reach a whole which is not a part, that is to say a WORLD." [ID 2:387]

We were able to remain wholly unconcerned about the agreement of our definition with the ordinary meaning of the word, for the only question which our definition raises concerns a problem which arises in accordance with reason, namely, how it is possible for several substances to coalesce into [*unum*], and upon what conditions it depends that this [*unum*] is not part of something else.”¹²⁵

One might at first think that Kant is raising the question about the nature of matter, whether it is ultimately grounded in simples or whether it is divisible *ad infinitum*. This question is also one that Kant takes to arise from reason.¹²⁶ But since he relates the question concerning how things form a unity to the question about the conditions according to which this unity is not part of something else, it is clear in light of his first definition of the world that he is raising a problem about the unity of the world rather than a problem about the unity of a substance.¹²⁷

Now the *form* of a world is that in virtue of which things “coalesce” into one:

“ [1] FORM, which consists in the *co-ordination*, not in the subordination, of substances [is another factor that requires attention in the definition of a world]. For co-ordinates are related to one another as complements to a whole, while subordinates are related to one another as caused and cause, or, generally, as principle and that which is governed by principle. The former relationship is reciprocal and homonymous, so that any correlate is related to the other as both determining it and being determined by it. The latter relationship is heteronymous, for on the one side it is a relation of dependence only, and on the other it is a relation of causality. [2] This coordination is conceived of as *real* and objective, not as ideal and depending upon the subject’s power of choice, by means of which any multiplicity whatsoever may be fashioned into a whole by a process of adding together at will. For by taking several things together, you achieve without difficulty a *whole of representation* but you do not, in virtue of that, arrive at the *representation* of a *whole*. Accordingly, if there happened to be certain wholes consisting of substances, and if these wholes were not bound to one another by any connection, the bringing of these wholes together, a process by means of which the mind forces multiplicity into an ideal unity, would signify nothing more than a plurality of worlds held together in a single thought. But [3] the connection, which constitutes the *essential* form of a world, is seen as the principle of the *possible influences* of the substances which constitute the world. For actual influences do not belong to the essence but to the state, and the transeunt forces themselves, which are the causes of the influences, presuppose

¹²⁵[*ID* 2:389]. I slightly depart here from Walford’s translation, which renders *unum* as “one thing”. This runs the risk of obscuring the important point that the unity of the world is different in kind than the unity of a thing.

¹²⁶ He discusses this latter question about the composition of matter in the first Antinomy in the Transcendental Dialectic of the *Critique of Pure Reason*, i.e., in a part in which Kant investigates reason (in his narrow sense of the term) and the questions that arise from reason.

¹²⁷ I thus disagree with Buroker who relates the passage to the questions that concern the nature of the parts of a substance: “In Section I Kant introduces the notion of a world in general as a whole or totality made up of substantial parts connected in some way. From this definition the most fundamental metaphysical questions arise. What is the nature of the parts or substances constituting the whole? Should they be conceived of as simple, as the Leibnizians believe? Do they exist necessarily or contingently?”(1981, 103) Kant is interested in the nature of substances; but he thinks about this nature in relation to the way in which substances form an overall unity, i.e., a world.

some principle by which it may be possible that the states of the several things, the subsistence of each of which is nonetheless independent of that of the others, should be mutually related to one another as states determined by a ground. If you abandon this principle, you are debarred from positing as possible a transeunt force in the world. [4] And, indeed, this form, which is essential to a world, is for that reason immutable and not subject to any change. And this is the case, first of all, on account of a logical ground. For any change presupposes the identity of the subject, whereas determinations succeed one another. Hence, the world, remaining the same throughout all its successive states, preserves the same fundamental form. For the identity of the parts is not sufficient for the identity of the whole; the identity of the whole requires an identity of the characteristic composition. But, above all, the same result follows because of a real ground. For the variable determinations which belong to its state, cannot be opposed to itself; consequently, it is naturally, that is to say, in virtue of itself, immutable. Accordingly, in any world there is a certain constant and invariable form, which, as the perennial principle of each contingent and transitory form belonging to the state of that world, must be regarded as belonging to its nature.”¹²⁸

Kant first discusses in [1] the logical character of the relation that is the form of a world. He notes that the form is a coordination rather than a subordination, where the difference amounts to the following: coordinates are complements to a whole, and coordination is a reciprocal and synonymous relation, i.e., the relata have the same valence; subordination, by contrast, is an asymmetrical relation and heteronymous, that is, relata have different valences; in particular, subordinates relate as cause and caused.

In [2] Kant turns to the ontological character of the form. He argues that the form of the world is real and objective rather than ideal and subjective. The contrast turns on whether the coordination is a matter of choice and will. So, in particular, a coordination that results from a choice does not give rise to an objective and real form, but merely to a subjective and ideal one. It is, as Kant writes, a whole of representations, but not the representation of a whole.

We can note here that, while in *The Only Possible Argument* Kant takes the element of choice to mark the contingency of a unity, he now takes it as a mark of subjectivity and ideality. This change can be explained with respect to the change from thinking of the world in relation to God to thinking of it in relation to our cognitive capacities. Thus, a choice on our part results in a subjective and ideal unity, whereas God’s choice results in a real unity that is, however, merely contingent.

In [3] Kant goes on to further characterize the unity or coordination that makes for a real whole. To this end, he introduces the idea of an essential form. The actual influences of things, Kant notes, belong to the world’s states, which are changeable. These actual influences are grounded in the transient forces of things, and these forces presuppose a principle by means of which “it may be possible that the states of the several things, the subsistence of each of which is nonetheless independent of that of the others, should be mutually related to one another as states determined by a ground.”

Kant introduces the notion of an essential form as that which makes possible the actual influences of things. He emphasizes again the point from the *New Elucidation* and from his discussion of the matter of the world, that substances are independent of one another with respect

¹²⁸ [ID 2:390, bracketed numbers are mine].

to their subsistence, i.e., their existence. Thus, there has to be some kind of principle in virtue of which they can have forces so as to act on one another. And this principle Kant now describes as the essential form of a world.¹²⁹

Kant goes on to argue in [4] that the essential form is immutable and not subject to any change. He first argues this on account of what he calls a logical ground. A change within a subject presupposes that something does not change about it, and in virtue of which it is the same throughout the change. This point goes back to Aristotle's reason for introducing the notion of form. Aristotle argues that the form of a subject, e.g., Socrates' soul, is that which remains the same throughout changes in a subject's state, for example Socrates' growing old or roaming about. Kant argues that a world as well requires that something remains the same and constitutes its identity throughout its changing states. Now one might think that, in the case of the world, its identity is given by the identity of the parts, i.e., the substances. But insofar as substances are independent of one another with respect to their existence, their identity cannot sufficiently determine the identity of the world. The identity of the world requires some kind of principle that explains the way in which substances compose a whole. Furthermore, as becomes clear from Kant's earlier writings, he thinks that there are different ways in which things can form an overall whole. More specifically, recall that in *True Estimation* he argues that spaces with different dimensionalities would give rise to different worlds. Now it seems likely that Kant has in mind the dimensionality of a space when he speaks of 'the characteristic composition of a world'. For example, objects seem to compose into larger wholes in a four-dimensional space in different ways from how they compose into larger wholes in a three-dimensional space.¹³⁰ So, similarly to the way in which Kant links the dimensionality of a world to the identity of a possible world in *True Estimation*, we can assume that he now ties the dimensionality of a world to its characteristic composition and thus to its form. And just as we saw that he took the dimensionality of a world to speak to its identity, we can assume now that the form of a world is the principle of its identity.

This point is further corroborated by the claim Kant makes when he turns to the 'real ground' of the immutability of the form of the world. In regard to this he notes that the world in its variable determinations cannot be opposed to itself; it thus requires something other than the world's changing or transitory states, namely an essential form, on account of which the world remains itself and which itself is not subject to change. The form is thus that which determines the world in its identity.

With the last moment of his hylomorphic definition of the world, *entirety*, Kant characterizes the kind of unity of a world, i.e., being a whole that is not part of something else. In his explication of this aspect, Kant contrasts 'entirety' as "the absolute totality of [a whole's] component parts" with a comparative totality.¹³¹ The latter is present in any given compound

¹²⁹ This idea has kinship with, e.g., Plato's view in the *Timaeus* that the demiurge employs a certain model when he builds the world as well as with Aristotle's notion of form as the principle of change. I think it would be worth drawing out the conceptual relationship more carefully. It is worth making clear though that Kant does not claim that the world has a soul (where in the ancient Greek philosophical tradition, e.g., by the pre-Socratic Thales of Miletus, the soul was understood to be the principle that makes motion possible). Rather he comes to think that the forms that explain, e.g., the lawlike character of motion, originate from our cognitive capacities.

¹³⁰ This seems to follow from the Wittgensteinian point that there is no difference between incongruent counterparts insofar as we can think of a fourth dimension that I discussed in §1.4. According to this line of thought, I might have a left-handed screw which will not fit into a right-handed nut if we are confined to a three-dimensional space, but in a four-dimensional space it could be made to fit because we could just rotate the screw along the fourth dimension.

¹³¹ [ID 2:391].

insofar as the totality of parts belonging to that compound is considered. For example, a house can be said to be totality in this comparative sense as long as it is complete with respect to all its parts – e.g., it is a comparative totality once it serves its function of habitation. But in the case of the entirety of the world, “whatever things are related to one another as joint parts with respect to any whole whatsoever, are understood as posited together.”¹³² In the case of the world we reach a certain endpoint, a whole that cannot form yet another whole. For example, with a house, we might think that together with other houses it forms a street, and streets of houses form a village, and villages form a county, etc. With the world a whole is posited that is an endpoint to all these wholes, it is a whole which is itself not a part anymore.¹³³

Now what is exactly gained by introducing a hylomorphic definition of a world; what kind of theoretical advantage does it bring? As we will see more clearly in the next chapter, it makes it possible for Kant to raise the problem of unity in a different way. Given the understanding of substances as the matter of a world, and their coordination into one as the form of the world, the question of how independent substances come to form a whole becomes a question about the relationship between matter and form, and, in particular, about the priority relation between matter and form. Within the hylomorphic framework one can thus ask whether the form of the world precedes its matter and makes it possible, or whether the matter makes the form possible and is possible independently of it. As we will see in the next chapter, Kant will mark the contrast between his view and Leibniz's rationalist one as concerning exactly this contrast in the priority relationship between matter and form.

We can also note that for his purposes in the *Dissertation* the hylomorphic definition makes Kant's overall object of investigation clear. As mentioned at the beginning of the chapter, his aim is to identify the principles of the form of the sensible and the intelligible world. We can now better understand that he wants to identify the principle that explains how sensible objects can form one overall unity, i.e., a sensible world, and the principle that explains how intelligible objects form one overall whole, i.e., an intelligible world.

3.2 The Sensible and the Intelligible

Before Kant turns to his investigation of the principle of the sensible and of the intelligible world respectively, he first discusses the distinction between sensible and intelligible things more generally. The distinction is drawn with respect to the two faculties that are involved in our cognition, sensibility and intellect.

“Sensibility,” Kant explains, “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.”¹³⁴ For example, in virtue of our sensibility I can perceive an object, say a green cup, I can apprehend its colors and its shape. Kant defines the intellect negatively as “the power to represent things which cannot by their own quality come before the senses.”¹³⁵ In relation to

¹³² [ID 2:391].

¹³³ There is an aspect of eternity that seems worth considering in relation to incongruence later on. If an object is considered in relation to a unity that is an entirety, it is considered in relation to any possible whole of which it can be a part. And so considered, the object is considered as a part simpliciter. This notion of part, in turn, seems crucial to thinking of something as a composite and as an object of synthesis.

¹³⁴ [ID 2:392].

¹³⁵ [ID 2:392].

the two cognitive capacities Kant distinguishes two kinds of objects, phenomena and noumena, where a phenomenon is the object of sensibility, and noumenon is the object of the intellect.

Since sensibility is a faculty of affection, Kant argues that cognition which is sensitive is dependent on the special character of the subject; such cognition is thus subjective and things are cognized *as they appear*. By contrast, Kant argues that if cognition is exempt from these subjective conditions, then the cognition relates merely to the object and is thus objective; things are cognized *as they are*.¹³⁶

Focusing on the representations of sensibility, Kant employs yet again hylomorphic terms to analyze their character. By this he intends to further spell out the subjective nature of these representations:

“In a representation of sense there is, first of all, something which you might call the matter, namely, the sensation, and there is also something which may be called the form, the aspect namely of sensible things which arises according as the various things which affect the senses are co-ordinated by a certain natural law of the mind. Moreover, just as the sensation which constitutes the matter of a sensible representation is, indeed, evidence for the presence of something sensible, though in respect of its quality it is dependent upon the nature of the subject in so far as the latter is capable of modification by the object in question, so also the form of the same representation is undoubtedly evidence of a certain reference or relation in what is sensed, though properly speaking it is not an outline or any kind of schema of the object, but only a certain law, which is inherent in the mind and by means of which it co-ordinates for itself that which is sensed from the presence of the object. For objects do not strike the senses in virtue of their form or aspect. Accordingly, if the various factors in an object which affect the sense are to coalesce into some representational whole there is needed an internal principle in the mind, in virtue of which those various factors may be clothed with a certain aspect, in accordance with stable and innate laws.”¹³⁷

Kant distinguishes sensations as the *matter* of a sensible representation, from the *form*, the way in which the sensations are co-ordinated into one. Now it is rather uncontroversial – at least at Kant’s time – to assume that sensations are subjective. For they are dependent on the ways in which the subject can be affected or modified. But Kant goes further and argues that the form, the way in which the sensations are coordinated, is also dependent on the subject. The form that the object takes in our sensible way of representing it is not “any kind of schema of the object.” Rather he thinks that this form is due to a “certain law, which is inherent in the mind and by means of which it co-ordinates for itself that which is sensed from the presence of the object.” Now this point is quite striking and one in which Kant diverges from other philosophers. And this claim is based on Kant’s notion that our sensibility has a form. This form is the law by means of which the mind coordinates for itself what is sensed. And it is this form of which Kant will argue that it is the form of the sensible world and that it is space and time.

The involvement of our sensibility both in respect to its matter and in respect to its form marks out one type of cognition, which Kant calls sensory cognition. He contrasts to this kind of

¹³⁶ Kant will come to revise significantly his views about the conditions for objective cognition in the *Critique*.

¹³⁷ [ID 2:392f].

cognition another type, one that is independent of sensibility and would merely involve the intellect. In order to mark out these two types, he first distinguishes two uses of the intellect, one of which he calls real and the other one logical. In the intellect's real use, the concepts are given "by the very nature of the understanding: they contain no form of sensitive cognition."¹³⁸ He argues that these concepts are not innate but rather "abstracted from the laws inherent in the mind (by attending to its actions on the occasion of an experience)."¹³⁹ In the case of the logical use of the intellect, no matter how the concepts are given, the intellect subordinates them to each other in accordance with the principle of non-contradiction.

With the distinction between a real and a logical use of the intellect, Kant makes conceptual room to distinguish between sensitive cognition and purely intellectual cognition. The intellect can be employed in a logical manner in the case of sensitive cognition, but this kind of employment of the intellect does not change the nature of the cognition; it does not render the cognition intellectual:

"[I]t is of the greatest importance here to have noticed that cognitions must always be treated as sensitive cognitions, no matter how extensive the logical use of the understanding may have been in relation to them. For they are called sensitive on account of their genesis and not on account of their comparison in respect of identity and opposition. Hence, even the most general empirical laws are nonetheless sensory; and the principles of sensitive form which are found in geometry (determinate relations in space), no matter how much the understanding may operate upon them by reasoning according to the rules of logic from what is sensitively given (by pure intuition), nonetheless do not cease to belong to the class of what is sensitive."¹⁴⁰

With the point that the employment of the intellect does not necessarily change the nature of the cognition, Kant is criticizing his rationalist predecessors. He argues that sensitive cognition is ill-defined as that which is cognized confusedly, a view that is rooted in the rationalist tradition.¹⁴¹ Kant thinks that confusion and distinction are merely logical notions which "do not touch at all the things given, which underlie every logical comparison."¹⁴² The nature of cognition is determined by the origin of its material. Accordingly, cognition is sensible because the material for cognition is given through our sensibility. And cognition is intelligible if the material originates from the intellect. To further underscore this point Kant maintains that geometry shows that "sensitive representations can be very distinct" whereas the case of metaphysics shows that "representations which belong to the understanding can be extremely

¹³⁸ [ID 2:394]. Kant mentions here the concepts of possibility, existence, necessity, substance, and cause, all of which are included among the categories, the pure concepts of the understanding, in the *Critique*.

¹³⁹ [ID 2:395].

¹⁴⁰ [ID 2:393f.].

¹⁴¹ For example, Descartes recognizes clearness and distinctness as the marks of an adequate representation of an object, and he thinks that clearness and distinctness are achieved by the intellect. He gives a definition of clearness and distinctness in the *Principles* as follows: "I call a perception "clear" when it is present and accessible to the attentive mind [...] I call a perception "distinct" if, as we all as being clear, it is so sharply separated from all other perceptions that it contains within itself only what is clear." (1998, 174; *Principles* 1:45, AT 8a:22) Also Leibniz gives a definition of clear and distinct knowledge in his *Meditations on Knowledge, Truth, and Ideas*.

¹⁴² [ID 2:394].

confused.”¹⁴³ The significance of this latter point becomes only fully apparent in light of Kant’s argument that space is the form of our sensibility. In light of this claim, geometry, as the science of space, is to be understood as investigating the principles that our sensibility contributes to our sensitive cognition.

3.3 Space as the Form of the Sensible World

Having made clear how he conceives of the difference between the sensible and the intelligible, that they differ in kind and not in degree, Kant continues to investigate the principles of the form of both the sensible and the intelligible world respectively. In regard to the former, he first spells out the notion of the principle of the form of the sensible world in more detail, which brings together both his hylomorphic conception of the world and his conception of the sensible:

“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. [...] [T]he 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 recognise any other principle 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 qualities of those objects) are seen as necessarily belonging to the same whole. Accordingly, whatever the principle of the form of the sensible world may, in the end, be, its embrace is limited to actual things, in so far as they are thought capable of falling under the senses. Accordingly, it embraces neither immaterial substances, which are already as such, by definition, excluded from the outer senses, nor the cause of the world, for, since it is in virtue of that cause that mind itself exists and is active through all its senses, that cause cannot be an object of the senses. These formal principles of the phenomenal universe are absolutely primary and universal; they are, so to speak, the schemata and conditions of everything sensitive in human cognition. I shall now show that there are two such principles, namely, space and time.”¹⁴⁴

The principle of the form of the sensible world is (i) the ground of the universal connection of phenomena, it is (ii) a subjective principle, a fixed law of the mind, which can be thought of as a schemata, and (iii) it is a principle in virtue of which all sensible things necessarily belong to the same whole. Kant also points out that this principle is limiting and does not embrace immaterial substances, e.g., souls, which cannot be objects of the senses.

As the features (i)-(iii) make clear, the form of sensibility as intended to play an explanatory role closely related to the one that the notion of a schema was to introduced to play in the *New Elucidation* and that the necessary unity was to play in *The Only Possible Argument*. The caveat is that the form of sensibility concerns merely phenomena and is a subjective principle, so a principle of human cognition. It thus does not ground a connection and a unity among things that they would have independently of their relation to our sensibility and

¹⁴³[ID 2:394f.]. Kant argues for the contrast between geometry and metaphysics already in *Inquiry Concerning the Distinctness of the Principles of Natural Theology and Morality* from 1764.

¹⁴⁴[ID 2:398].

independently of them appearing to us. And though the unity of this form is not ideal in the sense that it results from a subjective choice, i.e., a choice that is subjective in the sense that Kant indicated in his discussion of the form of a world, it is ideal in the sense that it results from a merely subjective principle rather than an objective one.

Now Kant argues that space (together with time) is the form of sensibility:

*“Space is not something objective and real, nor is it a substance, nor an accident, nor a relation; it is, rather, subjective and ideal; it issues from the nature of the mind in accordance with a stable law as a scheme, so to speak, for co-ordinating everything which is sensed externally.”*¹⁴⁵

According to Kant space (together with time) is a principle that explains the unity among independent objects insofar as they are phenomena, i.e., objects of our sensibility. In virtue of being in the same space, phenomena form one overall whole, the sensible world. Kant’s argument for this view precedes by way of arguing that our representation of space is a pure intuition. Before we can turn to his argument for this claim, the notion of intuition requires some clarification.

3.3.1 On intuition

Consider, as a first approximation to the notion of intuition, the following passage from Leibniz’s *Meditations on Knowledge, Truth, and Ideas*:

*“[W]e don’t usually grasp the entire nature of a thing all at once, especially in a more lengthy analysis, but in place of the things themselves we make use of signs, whose explicit explanation we usually omit for the sake of brevity, knowing or believing that we have the ability to produce it at will. And so when I think about a chiliagon, that is, a polygon with a thousand equal sides, I don’t always consider the nature of a side, or of equality, or of thousandfoldness (that is, of the cube of tenfoldness), but in my mind I use these words (whose sense appears only obscurely and imperfectly to the mind) in place of the ideas I have of these things, since I remember that I know the meaning of these words, and I decide that explanation is not necessary at this time. I usually call such thinking, which is found both in algebra and in arithmetic and, indeed, almost everywhere, *blind* and *symbolic*. And indeed, when a notion is very complex, we cannot consider all of its component notions at the same time. When we can, or indeed insofar as we can, I call knowledge *intuitive*. There is no knowledge of a distinct primitive notion except intuitive, just as our thinking about composites is for the most part symbolic.”*¹⁴⁶

Leibniz sheds some light on the notion of intuition as it is relevant for Kant by motivating the use of symbols in our thought with respect to the example of representations of geometrical figures. While we can represent a triangle as a singular thing with all its three sides, we cannot represent

¹⁴⁵ [ID 2:403].

¹⁴⁶ [AG, 24f.]

a chiliagon as a singular thing with all its thousand sides. A chiliagon is basically too complex to be represented in this way. And so, when we consider a chiliagon, we represent it *symbolically*, which, according to Leibniz, means that we use a different kind of representation, i.e., a word. In the case in which we represent something, such as a triangle, as one and, at the same time, with all its component parts, we represent it *intuitively*. So an intuitive representation is the representation of something complex as one.¹⁴⁷

In the *Dissertation* Kant also invokes a contrast between a symbolic and an intuitive representation. He uses this distinction as a way to mark the contrast between the sensible and the intelligible. According to him there is no intuitive representation of what belongs to the intellect for humans, but only a symbolic one, and “thinking is only possible for us by means of universal concepts in the abstract, not by means of a singular concept in the concrete.”¹⁴⁸ In close relation to Leibniz’s understanding of the notion of intuition, Kant takes it to denote the representation of something *as singular*. But where Leibniz points to the use of a symbol only as a kind of placeholder, Kant thinks of a symbolic representation as a conceptual representation, which for him is the representation of something *as universal or general*. Moreover, he takes an intuitive representation to be the representation of something in the concrete, whereas a symbolic or conceptual representation is the representation of something in the abstract.

Having worked out a more thorough theory of the intellect in the *Critique*, Kant distinguishes in the latter intuitions from concepts, and leaves aside the notion of symbolic representations. But he holds on to the defining contrast between representing something as singular and representing something as general. So, in the *Critique*, intuitions are defined as singular representations and concepts as general ones. In addition, Kant takes a contrast between the way in which a representation relates to an object – whether this relation is immediate or mediated – to be a further way of distinguishing the two kinds of representation; intuitions are immediate whereas concepts mediated.¹⁴⁹ However, drawing the contrast in terms of immediacy and immediacy depends on an assumption that Kant only comes to develop after the *Dissertation*, namely that the understanding is conditioned.

In the *Dissertation* Kant points out that our intuitive representation of something is importantly limited, which he puts forth as a reason for why we cannot have an intellectual intuitive representation:

“[A]ll our intuition is bound to a certain principle of form, and it is only under this form that anything can be *apprehended* by the mind immediately or as *singular*, and not merely conceived discursively by means of general concepts. But this formal principle of our intuition (space and time) is the condition under which something can be the object of our senses. Accordingly, this formal principle, as the condition of sensitive cognition, is not a means to intellectual intuition.”¹⁵⁰

¹⁴⁷ Leibniz also notes that when something lacks complexity, if it is primitive, we cannot but represent it intuitively. According to Kant, however, there cannot be a non-complex intuition. Since he thinks that space is the form of intuition, and since space is divisible *ad infinitum*, an intuition is necessarily complex.

¹⁴⁸ [ID 2:396].

¹⁴⁹ For example, compare the so-called “Stufenleiter” passage: “The genus is **representation** in general (*representatio*). Under it stands the representation with consciousness (*perceptio*). A **perception** that refers to the subject as a modification of its state is a **sensation** (*sensatio*); and objective perception is a **cognition** (*cognitio*). The latter is either an **intuition** or a **concept** (*intuitus vel conceptus*). The former is immediately related to the object and is singular; the latter is mediated, by means of a mark, which can be common to several things.”(A320/B376f)

¹⁵⁰ [ID 2:396].

Our intuition is limited, Kant argues, because it is bound to a certain form. This notion that our intuition is bound to a certain form is important in order to understand Kant's argument that our representation of space is an intuition. In particular, the representation of space can be understood as a manifestation of the form to which our intuitive representation of objects is bound.

As shown by Kirk Dallas Wilson, attention to the form of our intuition makes for a way to interpret the singularity criterion, and for a better understanding of Kant's notion of intuition.¹⁵¹ There has been discussion among interpreters about the relationship between the singularity and the Critical immediacy criterion of intuition. Some, e.g., Jaako Hintikka, maintain that immediacy is just another formulation of singularity, while others, e.g., Charles Parsons, argue that they are different, and that singularity is broader than immediacy.¹⁵² Wilson contributes to this debate by arguing that the two criteria are intensionally different but extensionally the same. For our purpose it is interesting to note how he defines the singularity criterion and how he takes intuitions to be contrasted to concepts.

According to Wilson's interpretation, the defining characteristics of a concept and of an intuition, i.e., generality and singularity respectively, are to be understood in the way in which the parts of a representation relate to the whole. In particular, while the generality of a concept amounts to a form according to which the parts are subordinated to the whole and the whole is contained within its parts, the singularity of an intuition amounts to a form according to which the parts are contained within the whole and the whole is greater than its parts.

For example, consider the contrast between the representation of 'being spatial' and the representation of 'being human'. When I represent something, say a cube, as spatial, I do so, according to Kant, by representing it as a part of a larger space. But I do not represent space as a whole as contained in the cube. By contrast, when I represent an object as a human, then I represent the object as falling under this representation and I represent 'being human' as a whole in the object.¹⁵³

Wilson expands further on both the generality of a concept and the singularity of an intuition by noting that the generality of a concept results from certain logical operations, namely, the comparison, reflection, and abstraction of representations.¹⁵⁴ By these operations representations are subordinated to one another, leading to a hierarchical order according to genus and species. The division of a concept occurs accordingly by adding differentiae.¹⁵⁵ So, for

¹⁵¹ Wilson (1975).

¹⁵² See, for example, Hintikka (1969), (1972), and Parsons (1969).

¹⁵³ Consider in this context the following footnote from the B Deduction: "Space and time and all their parts are intuitions, thus individual representations along with the manifold that they contain in themselves (see the Transcendental Aesthetic), thus they are not mere concepts by means of which the same consciousness is contained in many representations, but rather are many representations that are contained in one and in the consciousness of it; they are thus found to be composite, and consequently the unity of consciousness, as synthetic and yet as original, is to be found in them. This singularity of theirs is important in its application (see §25)" (B136)

¹⁵⁴ Kant discusses comparison, reflection, and abstraction as the acts of the understanding through which concepts are generated in his logic lectures. For example, in the Jäsche Logic, it says: "The logical actus of the understanding, through which concepts are generated as to their form, are:

1. comparison of representations among one another in relation to the unity of consciousness;
2. reflection as to how various representations can be conceived in one consciousness; and finally
3. abstraction of everything else in which the given representations differ." [Log 9:94]

¹⁵⁵ Wilson also notes that the subordination of part to whole is expressible by the classical set-theoretic membership relation so that A is a subordinated part of B =def. A is a member of P (P is contained under B), (1975, 254.)

example, I divide the concept ‘animal’ by adding, e.g., the differentiae ‘rational,’ whereby I distinguish, e.g., humans from other animals, lizards, say.

The structure of an intuition is different. An intuition has a mereological part-whole structure, where rather than being subordinated to one another, parts can be coordinated to form a larger whole.¹⁵⁶ And in contrast to the division of a concept by way of adding differentiae, an intuition is divided by adding limitations. This latter aspect draws out that an important aspect of intuition is the priority of the whole over the part.¹⁵⁷

3.3.2 The representation of space is a pure intuition

We turn now to Kant’s argument that our representation of space is a pure intuition. Kant gives two arguments in support of this claim.¹⁵⁸ One is intended to establish the point that this representation is pure, while the other is intended to establish that it is an intuition.

Kant argues that the representation of space is pure on the basis that rather than being something grounded in the perception of outer objects, it is presupposed by the possibility of the latter:

“*The concept of space is not abstracted from outer sensations.* For I may only conceive of something as placed outside me by representing it as in a place which is different from the place in which I am myself; and I may only conceive of things outside one another by locating them in different places in space. The possibility, therefore, of outer perceptions as such *presupposes* the concept of space; it does not *create* it. Likewise, too, things which are in space affect the senses, but space itself cannot be derived from the senses.”¹⁵⁹

Though this argument – which is to become the first apriority argument in the Metaphysical Exposition in the Transcendental Aesthetic – evokes its own interpretative challenges, e.g., whether Kant’s reasoning is circular and amounts to the claim that to represent something as spatial, the representation of space is presupposed, I will put it aside because for our purposes the second argument is more central.¹⁶⁰

Kant gives the following argument in support of the view that our representation of space is an intuition:

¹⁵⁶ The contrast between the subordination and coordination recalls Kant’s discussion of the form of a world when he explains that the form is a coordination rather than a subordination. But we have to be careful because here we are concerned with the character of our representations, whereas the contrast between the coordination and the subordination when it comes to the form of the world concerns the way in which objects relate to one another.

¹⁵⁷ “These, then, are the two principles of sensitive cognition. They are not, as is the case with the representations of the understanding, general concepts but singular intuitions which are nonetheless pure. In these intuitions, the parts and, in particular, the simple parts do not, as the laws of reason prescribe, contain the ground of the possibility of a compound. But, following the paradigm of sensitive cognition, it is rather the case that *the infinite contains the ground of each part* which can be thought, and, ultimately, the ground of the simple, or, rather of the *limit*.” [ID 2:405]

¹⁵⁸ In the A edition of the *Critique*, Kant gives five arguments; he rearranged these five arguments for the B-edition and presents four of the five under the heading of Metaphysical Exposition of the Concept of Space and one under the heading of a Transcendental Exposition of the Concept of Space.

¹⁵⁹ [ID 2:402].

¹⁶⁰ See Warren (2001) for a discussion of this argument including a way to address the circularity worry.

*“The concept of space is a singular representation embracing all things within itself; it is not an abstract common concept containing them under itself. For what you speak of as several places are only parts of the same boundless space related to one another by a fixed position. And you can only conceive to yourself a cubic foot if it be bounded in all directions by the space which surrounds it.”*¹⁶¹

Kant’s argument relies on the contrast between the form of a concept and the form of our representation of space. As explained earlier in relation to Wilson’s interpretation of the generality criterion, a concept is a general representation because of the way in which it is formed through a process of comparison, reflection, and abstraction. Kant alludes to this kind of process, noting that the representation of space is not obtained in this way.¹⁶² If it were so obtained, it would be something abstracted from the representation of several places. But we represent several places, and more generally parts of spaces, as parts of one and the same boundless space. We can only conceive a part of space by representing a limited space, which representation presupposes the representation of space that surrounds it.¹⁶³ Kant makes the contrast especially clear by pointing out that we represent “all things” *within* space, and not as *falling under* space. Thus because our representation of space does not have the character of a general representation, but the character of a singular one - in the sense specified by Wilson - it is an intuition.

One point that deserves further emphasis here is that Kant takes our representation of space to be the representation of a unity that embraces all things within itself. It is thus not just, as Wilson points out, that the singularity of intuition implies that the parts are contained in the whole. But, according to Kant’s conception, there is one whole that contains all parts. In other words, we represent space as one entirety, to recall the third moment of Kant’s definition of a world.¹⁶⁴

3.3.3 From the representation of space to the nature of space

On the basis that our representation of space is a pure intuition Kant concludes that

*“[s]pace is not something objective and real, nor is it a substance, nor an accident, nor a relation; it is rather, subjective and ideal; it issues from the nature of the mind in accordance with a stable law as a scheme, so to speak, for coordinating everything which is sensed externally.”*¹⁶⁵

The argumentative step from the character of our representation of space to the nature of space is puzzling at first; how, one likely wonders, does the pure intuitive character of the representation of space speak to space being merely subjective? For Kant, the relevant question to be asked here

¹⁶¹ [ID 2:402].

¹⁶² It also seems likely that Kant has in mind §47 of Leibniz’s fifth letter to Clarke in which he argues for a certain way in which the representation of space is formed. See my chapter one, section 1.2 for a discussion.

¹⁶³ It is worth recalling the passage from Newton’s *De Gravitatione* quoted in chapter one, section 1.1.

¹⁶⁴ This point becomes more noteworthy in relation to incongruent counterparts. For in order to represent these objects as different, we have to represent them as parts of one and the same space.

¹⁶⁵ [ID 2:403].

is, “How is this representation of space, i.e., a pure intuition possible?” And he thinks that this is possible only if space is nothing but the form of our sensibility.¹⁶⁶

Kant makes clear that he intends to offer a view of the nature of space that is neither Newtonian nor Leibnizian. For, against the Newtonians he remarks that the notion that space is “an absolute and boundless receptacle of possible things” is an “empty fabrication of reason: since it invents an infinite number of true relations without there being any beings which are related to one another, it belongs to the world of fable.”¹⁶⁷

He goes more at length in criticizing the Leibnizian view, which he thinks runs into more severe issues:

“The proponents of the second view [i.e., the view that space is the relation itself which obtains between existing things], however, are in headline conflict with the phenomena themselves, and with the most faithful interpreter of all phenomena, geometry. For, without mentioning the obvious circle in the definition of space in which they are necessarily entangled, they cast geometry down from the summit of certainty, and thrust it back into the rank of those sciences of which the principles are empirical. For if all the properties of space are merely borrowed by experience from outer relations, then there would only be a comparative universality to be found in the axioms of geometry, a universality such as is obtained by induction, that is to say, such as extends no further than observation. Nor would the axioms of geometry possess any necessity apart from that which was in accordance with the established laws of nature, nor any precision apart from that which was arbitrarily constructed.”¹⁶⁸

It is instructive to compare the points that Kant makes about geometry to some of his points in the *The Only Possible Argument*. As we saw, Kant argues in the latter that there is a necessary unity among things, a unity with respect to their material nature. And he argues that this unity must be grounded in God’s nature rather than his will. Now we can further note that part of the reason to explain the unity with respect to the nature of objects and to ground it in God’s nature is to explain the necessity and universality of the laws of motion. Insofar as these laws are necessary, Kant thinks that they must govern the nature of material things, i.e., the properties that concern their possibility qua material objects.

We can discern a comparable line of thought when it comes to geometry. Kant thinks that the Leibnizian view runs into issues when it comes to the necessity of geometry insofar as the Leibnizians are committed to the view that it is empirical. Now similar to the way in which Kant can be seen as explaining the necessity of the laws of motion with respect to their being grounded in those properties that objects have in virtue of their possibility as material objects, so does he explain the necessity of geometrical principles by their being grounded in those properties that objects have in virtue of their possibility as sensible objects. And in both cases,

¹⁶⁶ Kant raises this question explicitly in the Transcendental Aesthetic clarifying his overall line of thought. Many have pressed Kant on his claim that space is nothing but the form of sensibility. One prominent objection that has been raised already during the interval of the first and second edition of the *Critique* is the so-called *neglected alternative* worry. The worry is whether Kant neglected the possibility that space and time, though forms of our sensibility, are also properties of things in themselves. In other words, could there be an option that is a middle ground between space and time being subjective and objective?

¹⁶⁷ [ID 2:403f.].

¹⁶⁸ [ID 2:404].

the necessity and universality of the laws speak to a unity among all objects. And so in both cases he argues that there must be some kind of principle that explains this unity. Now in the geometrical case, this unity and thus the necessity and universality of geometry is explained by space being the form of our sensibility. There is thus a close connection between the Leibnizian view that there is merely a contingent unity among things, their view that space is something abstracted from objects rather than the form of sensibility, and the view that geometry is merely empirical, and Kant's view that there is a necessary unity among things, his view that space is the form of our sensibility, and his view that geometry is a priori.

3.4 Incongruent Counterparts Revisited

Kant invokes again incongruent counterparts in the context of his argument that space is the form of our sensibility, specifically in relation to the claim that our representation of space is a pure intuition:

“Indeed, this pure intuition can easily be seen in the axioms of geometry, and in any mental construction of postulates, even of problems. [1] That space does not have more than three dimensions, that between two points there is only one straight line, that from a given point on a plane surface a circle can be described with a given straight line, *etc.* – none of these things can be derived from some universal concept of space; they can only be *apprehended* concretely, so to speak, in space itself. [2] Which things in a given space lie in one direction and which things incline in the opposite direction cannot be described discursively nor reduced to characteristic marks of the understanding by any astuteness of the mind. [3] Thus, between solid bodies which are perfectly similar and equal but incongruent, such as the left and right hands (in so far as they are conceived only according to their extension), or spherical triangles from two opposite hemispheres, there is a difference, in virtue of which it is impossible that the limits of their extension should coincide – and that, in spite of the fact that, in respect of everything which may be expressed by means of characteristic marks intelligible to the mind through speech they could be substituted for one another. It is, therefore, clear that in these cases the difference, namely, the incongruity, can only be apprehended by a certain pure intuition.”¹⁶⁹

In this passage Kant is mounting support for his previously argued contention that our representation of space is a pure intuition. He notes that certain geometrical statements can be made only in reliance on this pure intuition and could not be derived from a general concept. In light of the interpretation of Kant's 1768 discussion given in the first chapter, it stands out that, in [1], Kant notes that space being limited to three dimensions belongs to these statements. In [2], he alludes to the opposition in directions, and in [3], he cites incongruent counterparts. The idea that all of these support the view that our representation of space is a pure intuition makes clear that he sees all three as being interrelated; in particular, they all involve space in its overall unity. And it is for this reason that they support the view that our representation of space is a pure intuition.

¹⁶⁹ [ID 2:403; bracketed numbers mine].

In contrast to his 1768 discussion, in which Kant was focused on how the difference between incongruent counterparts is possible, in the given passage he is focused on our grasp of the difference. And in accordance with this change in focus, the question that arises with respect to these objects is by means of what kind of representation is their difference discernible. In particular, the question is, can their difference be expressed ‘by means of characteristic marks intelligible to the mind through speech’ or does it require a pure intuition? As we saw, the contrast between these two kinds of representation concerns a difference between thinking of space as a general representation or as a singular one. And recall that, according to the former, the representation of space would be such that its parts are subordinate to or contained under the whole, the whole would be obtained by abstracting from several instances, and it would be represented fully in each of these instances. Furthermore, the representation of space as a whole would be divided by introducing differentiae. Represented as an intuition, however, space is represented as an overall whole the parts of which are represented as contained in the whole. The whole is strictly larger than each part and cannot be fully represented within a part. The representation of the part is obtained by way of limiting the whole, so the representation of the whole is prior to the representation of the part. This is also the way in which the representation is divided.

Now Kant’s idea in the *Dissertation* is that our grasp of the difference between incongruent counterparts involves the representation of space as an intuition, whereas if we take the representation of space to be a general representation, then there would be no difference between these objects for there is no difference with respect to those aspects that can be represented as falling under a general concept of space. The basic issue – which will become clearer over the course of the next two chapters – is that, if space were a general representation, objects would be considered to be independent of each other. But the difference between incongruent counterparts requires the representation of both objects as parts of the same overall space, and thus the understanding that they are in a certain sense dependent on one another. For example, Kant will emphasize in the *Prolegomena* that the difference is only discernible by trying and failing to superimpose the objects. But trying to superimpose the objects, it has to be assumed that they are parts of the same space.

We will return to our grasp of the difference between incongruent counterparts in chapter five when we discuss the passage from the *Prolegomena*. For now, we can note that, just as the possibility of the difference between incongruent counterparts involves space as a whole, so does our grasp of the difference involve the representation of space as an intuition.

However, here we already find out more about the philosophical significance of incongruent counterparts for Kant. He argues that we rely on space as a pure intuition, i.e., as the representation of a whole of which every object is a part, in order to grasp this difference. That is, incongruent counterparts speak to Kant’s claim that there is a unique whole, space, of which every object that we can sensibly represent is considered to be a part. These objects thus support his view that there is a necessary unity among sensible objects in virtue of which they are parts of a world, and that this unity is space:

“Accordingly, *space* is an absolutely first *formal principle of the sensible world*, not only because it is only in virtue of this concept that the objects of the universe can be phenomena but above all for this reason, that by its essence space is nothing if not unique, embracing absolutely all things which are externally

sensible; it thus constitutes a principle of entirety that is to say, a principle of a whole which cannot be a part of another whole.”¹⁷⁰

3.5 The Form of the Intelligible World

Before moving on to the next chapter, I want to touch briefly on Kant's discussion of the form of the intelligible world. He argues that since space and time are subjective and ideal, they cannot explain how a plurality of substances should mutually interact with each other and form a real unity. After explaining again the issues he takes with the idea of explaining the possibility of interaction and unity in terms of the existence of things, he argues that the substances which constitute a world are beings that derive from another being and that the “the UNITY in the conjunction of substances in the universe is a corollary of the dependence of all substances on one being.”¹⁷¹

Thus, in the *Dissertation*, Kant still holds on to the view that he develops in *The Only Possible Argument*. He thinks that there is a necessary unity among objects on account of their dependence on God. However, in light of his view that space and time as the forms of our sensibility also give rise to a necessary unity, though one that concerns sensible objects rather than intelligible objects, his view becomes more complex.

Where does this leave things, then, with respect to the problem of unity? Kant has taken important steps by developing the conceptual means for a new approach to a solution with his hylomorphic conception of the world, the notion of the form of our sensibility, and the view that space is this form. However, Kant does not lay out a well integrated solution to the problem in the *Dissertation*. The biggest issue concerns the relationship between the sensible and the intelligible. Given the subjective nature of the unity that originates from our sensibility and the objective nature of the unity that originates from God, one would expect that the two unities are independent of each other. Correspondingly one would expect that sensible objects, phenomena, are independent of intelligible things, noumena. But this assumption is called into question by a remark Kant makes that suggests that he sees a relationship between the two. In his discussion of form in the first section of the *Dissertation*, he motivates an investigation into the form of the world in part as follows:

“Those who consider this investigation to be superfluous are baffled by the concepts of *space* and *time*. They treat them as primitive conditions which are already given in themselves, and, in virtue of which to be sure, and independently of any other principle, it would be not only possible but also necessary that a number of actual things should be mutually related to one another as joint parts and should constitute a whole. I shall, however, shortly explain that these notions are not rational at all, and that they are not objective ideas of any connection, but that they are appearances, and that, while they do, indeed, bear witness to some common principle constituting a universal connection, they do not expose it to view.”¹⁷²

¹⁷⁰ [ID 2:405].

¹⁷¹ [ID 2:408].

¹⁷² [ID 2:391].

Kant argues here that space and time are not the principles on account of which things are mutually related because they are merely subjective principles. Yet he claims that they *bear witness* to a common principle though they do not expose it to view. But how can space and time bear witness to a common principle if they are nothing but the forms of our sensibility?

It seems that Kant himself was not clear on the matter. For the question here also concerns the role that space and time as forms of sensibility might play for our intellect. And this is one of the main revisions that Kant undertakes in his view in the *Critique*. Kant comes to think that space and time condition our understanding. And it is with respect to this point that he comes to reframe the issue he takes with Leibniz as one concerning the question of whether form precedes matter or whether matter precedes form.

Chapter 4: The Amphiboly of Matter and Form

Overview

In the last two chapters, we have seen how the problem of unity provides a relevant interpretational background for Kant's conception of space as the form of our sensibility. Kant develops this conception in relation to the question of how it is possible for objects that are independent of one another in their existence to form a world. And he gives significance to the unity of space in light of this. Equipped with this background I now turn to a passage from the Amphiboly of the Concepts of Reflection, a short section appended to the Transcendental Analytic in the *Critique of Pure Reason*.

In the Amphiboly Kant criticizes Leibniz's view of our conception of reality and contrasts his own. This criticism turns on the difference that the form of sensibility makes to our conception of reality. Kant marks this difference with respect to four pairs of concepts, which he takes to be involved in the formation of such a conception. These are (i) identity and difference, (ii) agreement and opposition, (iii) inner and outer, and (iv) matter and form. The focus of the following chapter is specifically on Kant's discussion of form and matter.

In the discussion of form and matter Kant contrasts his view as one according to which form precedes matter to Leibniz's view as one according to which matter precedes form. I argue that the question that underlies this contrast is the question that relates back to the problem of unity, viz., how it is possible for independent objects to form a whole. In characterizing Leibniz's view as one according to which matter precedes form, I claim that Kant takes Leibniz to endorse what we can call a *substances-first view*, meaning that Leibniz first assumes substances to then ground on that the way in which they form a world. Against this, Kant, in arguing that form precedes matter, advocates for what we can call a *world-first view*. According to such a view, substances are possible only as parts of a whole. This means that the way in which they form a world precedes them and makes them possible as objects of our cognition in the first place. We can thus understand the claim that form precedes matter as Kant's Critical solution to the problem of unity. Turning to Kant's discussion of incongruent counterparts in §13 of the *Prolegomena* in the next chapter, I will argue that we can further clarify the philosophical significance that Kant gives to incongruent counterparts by invoking the contrast in the priority of matter and form.

I first spend a few more general words on Kant's line of reasoning in the Amphiboly in §4.1, and discuss the standard interpretational approach that is taken towards this section, which has largely neglected the significance of Kant's discussion of matter and form, in §4.2. I then turn to the passage on matter and form in §4.3.

4.1 The Amphiboly of the Concepts of Reflection

As we saw in the last chapter, Kant develops a framework in the *Dissertation* that allows him to approach the problem of unity from a different angle, one in which the human cognizing subject comes to play an explanatory role for the possibility of a unity among objects. However, as also noted in the last chapter, Kant's view in the *Dissertation* involves certain issues. Most of all, his dualism around the sensible and the intelligible leaves it unclear how the form of the sensible world relates to the form of the intelligible world. Now in the *Critique*, Kant develops a more

sophisticated view of the intellect in which he distinguishes the understanding, our capacity for conceptual representation and for judgement, from reason, our capacity to draw inferences. And he comes to think that the understanding is conditioned by the forms of sensibility. This leads him to give up the dualism that we find in the *Dissertation* and to endorse the view that the only cognition available to us is sensible cognition.

Kant's rethinking of the relationship between sensibility and understanding has implications for his approach to the problem of unity. With the view that the understanding is conditioned, the unity that originates from the form of sensibility is now assumed to figure in the possibility of connection among the objects of the understanding and their possibility of forming a whole. This, in turn, means that the form of sensibility does explanatory work for the possibility of objects being subject to the same natural laws. An investigation into Kant's Critical view about the significance of the unity of the forms of sensibility for the possibility of the objects of our understanding and how it makes possible that they are subject to the same laws goes beyond the scope of this work, but the basic idea is that insofar as all sensible objects are parts of the same overall spatio-temporal whole as constituted by the forms of sensibility, they can be conceptualized such as to be subject to the same natural laws. Kant discusses the possibility of the lawful character of the objects in the Transcendental Analytic to which the Amphiboly is the appendix.

Now in the Amphiboly, Kant draws out certain consequences of the view that our understanding is conditioned by space and time as the forms of our sensibility. In particular, he explains how this view calls into question certain core principles of a Leibnizian rationalistic metaphysics. These principles are (1) the principle of the identity of indiscernibles, (2) the principle that an opposition between realities is impossible, (3) the view that reality is made up of simple substances that stand in a pre-established harmony, and (4) the view that space and time are only possible as, respectively, relations among substances and relations among determinations of substances, and otherwise merely ideal.¹⁷³ Kant argues that these principles originate from a conflation, an amphiboly, in the employment of four pairs of concepts, the *concepts of reflection*: (c1) identity and difference, (c2) agreement and opposition, (c3) inner and outer, and (c4) matter and form.¹⁷⁴ And the conflation, so Kant's main point, is ultimately due to Leibniz's rationalism. For, due to his rationalism Leibniz dismisses the significance of the forms of our sensibility for our cognition.

In order to make Kant's line of thought a bit more concrete, note, first, that according to him we compare representations with respect to the concepts of reflection in order to form a conception of something falling under a category – in the technical sense of the term that he lays out in the Transcendental Analytic.¹⁷⁵ For example, we compare representations with respect to identity and difference in order to form a conception of something falling under the categories of unity and plurality, the first two categories of quantity. However, given that we have two cognitive faculties, understanding and sensibility, there are two ways in which objects can be assumed to relate to our cognitive capacities: “[T]he things can have a twofold relation to our

¹⁷³ Many of the points Kant makes with respect to these principles have their origin in his pre-Critical works. For example, he already criticizes the Principle of the Identity of Indiscernibles in the *New Elucidation*. And his point about the possibility of opposition between realities relates back to points he makes in his discussion of God's supreme reality in *The Only Possible Argument* and his essay on *Negative Magnitudes*.

¹⁷⁴ See Reich (1992) and Longuenesse (1998), especially chapter six, for a discussion of how these concepts figure into our judgments.

¹⁷⁵ See (A80/ B106) for the table of categories.

power of cognition, namely to sensibility and to understanding.”¹⁷⁶ As there are these two ways in which things can relate to our cognitive capacities, there are correspondingly two ways in which representations of objects can be compared. They can be compared such that it is assumed that the objects of our cognition are objects of the pure understanding, or they can be compared such that it is assumed that the objects of our cognition are objects of our sensibility. Going back to the example of identity and difference, in the case in which we take things to relate to our understanding, they are assumed to be numerically different only if there is at least one inner property that we can attribute to one thing but not the other. However, if things are taken in relation to our sensibility, they are taken as being given in space. And in this case things are sufficiently determined to be numerically different in virtue of an outer property, viz., by being in different places. ‘Difference in place’ is thus a sensible condition on the numerical difference of objects.

Now due to his view that the understanding is conditioned by the forms of sensibility, Kant thinks that there is a correct and an incorrect way to compare objects: “[Y]et it is this place **in which** they belong that concerns **how** they ought to belong to each other.”¹⁷⁷ Thus, depending on how the object is given, representations ought to be compared either according to the conditions of the pure understanding or according to the conditions of sensibility.¹⁷⁸ And this is where Kant now locates his issue with Leibniz. Leibniz, Kant claims, treats the objects of our sensibility as objects of the pure understanding:

“[D]eceived by the amphiboly of the concepts of reflection, the famous Leibniz constructed an **intellectual system of the world**, or rather believed himself able to cognize the inner constitution of things by comparing all objects only with the understanding and the abstract formal concepts of its thinking. [...] He compared all things with each other solely through concepts, and found, naturally, no other differences than those through which the understanding distinguishes its pure concepts from each other. The conditions of sensible intuition, which bring with them their own distinctions, he did not regard as original; for sensibility was only a confused kind of representation for him, and not a special source of representations; for him appearance was the representation **of the thing in itself**, although distinguished from cognition though the understanding in its logical form, since with its customary lack of analysis the former draws a certain mixture of subsidiary representations into the concept of the thing, from which the understanding knows how to abstract. In a word, Leibniz **intellectualized** the appearances.”¹⁷⁹

¹⁷⁶ (A262/ B318).

¹⁷⁷ (A262/ B318).

¹⁷⁸ In light of his transcendental idealist thesis that we cannot have any knowledge of things as they are in themselves, there is a question for Kant if it is ever legitimate to compare objects as objects of the pure understanding. One possible way to address this is that in the case of practical cognition, objects can be taken as objects of the pure understanding. But – and I think this is the more relevant point for Kant in the Amphiboly – the even merely theoretical possibility of comparing objects as objects of the pure understanding is important precisely in order to draw out the significance of the form of sensibility and the limitations of our cognition. But to say that there is a theoretical possibility that we can consider is not to say that we indeed can compare objects in this way. The theoretical possibility is based on us having two cognitive capacities, not on us having two kinds of cognition.

¹⁷⁹ (A270f/ B326f).

It is worth emphasizing that Kant's point is not that Leibniz gives no role to our senses in our cognition.¹⁸⁰ The point is rather that Leibniz, as Kant portrays him, thinks that even though something is given through our sensibility, this does not mean that it is taken up as something conditioned by space and time as the forms of our sensibility. Leibniz thus treats what is given through sensibility as something the cognizable character of which is ultimately independent of space and time. This is also not to say that what is or can be given through our sensibility is assumed to lack spatial and temporal properties. The issue is rather that Leibniz does not treat these properties in the right way. For example, in the case of space, only those spatial properties that can be conceptualized as accidents of an object, and thereby as something that can be grounded in objects as they are independently of the possibility of relating to other objects, are treated as something real.¹⁸¹ But in those cases in which space seems to be something independent of objects, Leibniz argues that such a way of conceiving space results from a confusion.¹⁸² Abstracting from the forms of sensibility, the objects of our sensibility are treated only in relation to the understanding. That is the relevant sense in which they are intellectualized.

4.2 On the Significance of the Amphiboly of Matter and Form

Commentators of the Amphiboly have largely been interested in how it bears on the notion of *a thing in itself*. It is commonly agreed that Kant spells out a Leibnizian, rationalist conception of a thing in itself, and some commentators, in light of remarks that indicate approval, have held that Kant himself endorses this conception.¹⁸³

Because of the interest that has been taken in the notion of a thing in itself the interpretative focus in the Amphiboly has mainly been on Kant's discussion of the conceptual pair of inner and outer, treating his discussions of the other pairs as largely peripheral or

¹⁸⁰ Some commentators, e.g., McRae (1976), Parkinson (1981), and Bolton (2021), maintain that Kant misrepresents Leibniz's view and they argue that Leibniz assigns our sensibility an essential role for our cognition. I think these worries can be set aside if it becomes clearer that Kant is concerned with the difference space and time make in virtue of providing an overall unity to objects.

¹⁸¹ This is the reason Kant portrays Leibniz's view as one according to which space and time attach to things in themselves.

¹⁸² "The uniqueness and independence from things, however, which both [space and time] seem to have in themselves, [Leibniz] ascribed to the confusion of these concepts, which made that which is a mere form of dynamical relations be taken for an intuition subsisting by itself and preceding the things themselves." (A276/ B332)

It is worth recalling Leibniz's discussion of ratios in §47 of his fifth letter to Clarke that we discussed in chapter one with respect to this point. I will pick up this discussion again below.

¹⁸³ There has been discussion of the question of whether Kant is committed to the view that there is a way in which things are in themselves, and, more specifically, whether they have an intrinsic nature. The claim that he is so committed was put forward by Rae Langton in her (1998). She argues that even though we cannot have knowledge of things in themselves according to Kant, we can know that they exist and that they have inner determinations. For her argument she draws heavily on the amphiboly of inner and outer. Daniel Warren also takes Kant to be committed to things in themselves being a certain way. In the second chapter of his (2001), he argues that Kant's doctrine that we do not know things as they are in themselves is not to deny that things have inner properties. And, furthermore, Lucy Allais also argues in chapter ten of *Manifest Reality* that the Amphiboly helps to understand Kant's commitment to there being a way things are in themselves. Criticism of this interpretative approach comes from Anja Jauernig. She takes issue with the view that takes the Amphiboly to reveal something about Kant's views on how things are in themselves in chapter six of her (2021). Also see Rodrigo Zanette de Araujo (2022) for a criticism that is focused on Langton's and Allais's reading of the Amphiboly.

subordinate to the former. This has led commentators to overlook the significance of Kant's discussion of matter and form, and sometimes even to reject it explicitly.

A telling example is Derk Pereboom's *Kant's Amphiboly*. Pereboom argues that "[a]t the heart of [his argument of the Amphiboly] is Kant's criticism of Leibniz's view that the nature of any substance consists solely of intrinsic (i.e. non-relational) properties."¹⁸⁴ And he remarks in a footnote that the conceptual pair of inner and outer "is more fundamental than identity and difference [...] and agreement and opposition" and that he suspects "that there is no deep difference between the third pair and the fourth, matter and form."¹⁸⁵

I agree with Pereboom that Kant's points with respect to the concepts of identity and difference, and agreement and opposition are parasitic on other ones. But it is less clear that they are parasitic on the concepts of inner and outer. Importantly, I think that there is a 'deep difference' between Kant's discussion of inner and outer and his discussion of matter and form, even though it is difficult to make out. I think that the difficulty here arises from Kant's use of the concepts of matter and form. As we have seen, Kant's use differs from the traditional Aristotelian one in that he applies these terms at the level of the world. However, in light of the traditional use, one might think that Kant's discussion of matter and form concerns the conception of an individual substance. In this case, it would indeed be difficult to distinguish Kant's discussion of matter and form from his discussion of inner and outer as the latter does concern the conception of an individual substance. But once it is clear that the problem of unity constitutes a relevant background for Kant's conception of the form of our sensibility, it becomes clear that the issue he treats with respect to the concepts of matter and form concerns the issue of an overall unity among objects.

Yet this is not to say that the two discussions are completely independent of one another. In his discussion of the concepts of inner and outer, Kant makes a contrast between his view and Leibniz's with respect to the priority between a substance's inner and outer properties. He says of Leibniz that according to his view the inner properties precede the outer ones. And he argues against this that the outer properties precede the inner ones, and that indeed, we can only have knowledge of relatively inner properties but not of absolutely inner ones. The latter claim goes hand in hand with his transcendental idealist thesis that we cannot have knowledge of things as they are in themselves. It is of course striking that in both his discussion of the concepts of matter and form and in his discussion of the concepts of inner and outer, Kant argues for a reversal of a priority relation. But *pace* Pereboom, I think this is because the priority of a substance's outer determinations over its inner ones follows from the priority of form over matter. The point here is, roughly, that on account of the priority of form, matter is only possible as 'in-formed.' This means that there is an overall unity in virtue of which things together form a world that makes substances as such possible in the first place. Substances are thus merely possible as parts of a whole. And this means for an individual substance that its outer determinations precede its inner ones and make the latter possible. So, in sum, I think that the points Kant makes with respect to the concepts of matter and form are in an important way more basic and motivate the points he makes with respect to the other pairs of concepts.

¹⁸⁴ Pereboom, (1991, 51).

¹⁸⁵ Pereboom (1991, 57, footnote 14).

4.3 Matter and Form in the Amphiboly

In his discussion of matter and form, Kant argues three points: First, he argues that because Leibniz thinks that matter has to precede form, Leibniz assumes substances and their internal states as an antecedent ground of their outer relations and community in states. Second, he argues that for the same reason Leibniz conceives of space and time as something grounded in substances. And third, he argues that, insofar as we determine objects in sensible intuition, form precedes matter and makes the latter possible. I want to suggest that the contrast Kant makes with these three points amounts to contrasting positions with respect to the problem of unity. In order to see this, let us first consider Kant's arguments for the three points in more detail.

With respect to the first point, Kant starts off with the idea that there is a certain demand of our understanding which he introduces by giving a list of senses of "matter" and "form":

"The logicians formerly called the universal the matter, but the specific difference the form. In every judgment one can call the given concepts logical matter (for judgment), their relation (by means of the copula) the form of the judgment. In every being its components (essentialia) are the matter; the way in which they are connected in a thing, the essential form. Also, in respect to things in general, unbounded reality is regarded as the matter of all possibility, but its limitation (negation) as that form through which one thing is distinguished from another in accordance with transcendental concepts. The understanding, namely, demands first that something be given (at least in the concept) in order to be able to determine it in a certain way."¹⁸⁶

Though the overall rationale of this list is rather obscure, what is important is that Kant takes it to reveal that the understanding demands that something be given in order to be able to determine it. At the beginning of the passage Kant introduces what he calls the "transcendental sense" of the concepts of matter and form, where abstraction is made from the way in which something is given. In this transcendental sense 'matter' is 'the determinable' and 'form' is 'its determination.' Following from this transcendental sense, the demand of the understanding states that matter precedes form.

It is on the basis of this demand that Kant attributes to Leibniz the following view: "Leibniz first assumed things (monads) and an internal power of representation in them, in order subsequently to ground on that their outer relation and the community of their states (namely of their representations) on that."¹⁸⁷

Against the problem of unity, we can take Kant to think of matter and form as something that applies to the world. We can thus reconstruct his line of thought here as follows: On account of his rationalism, Leibniz thinks that the demand of the pure understanding finds its application to what can be given through our sensibility. And so Leibniz thinks that objects are given to the understanding in an unorganized or an "un-in-formed" way, to bring back Ackrill's term, as the former, *qua* matter, precede their form.¹⁸⁸ The objects of our cognition are thereby assumed to be possible independently of one another, which motivates the idea that they are possible in virtue of their inner determinations alone. The way in which they can be assumed to organize into a

¹⁸⁶ (A266f./ B322f.).

¹⁸⁷ (A267/ B323).

¹⁸⁸ Ackrill (1972/73).

whole is then in a subsequent manner such that their overall organization is grounded in those properties that objects have independently of one another.

We can see this notion of the priority of matter to some extent at work in Leibniz's reasoning in §47 of his fifth letter to Clarke, which I already discussed in the first chapter. Recall in particular Leibniz's treatment of ratios, which he puts forth as an example to illustrate how "the mind uses, upon occasion of accidents which are in subjects, to fancy to itself something answerable to those accidents, out of the subjects."¹⁸⁹ He argues that the ratio between two lines L and M can be conceived in three ways, either such that it is an accident of L, or that it is an accident of M, or that it is an accident of both L and M simultaneously. But Leibniz dismisses this third way of conceiving of it, saying that it runs contrary to the notion of an accident. For an accident, he argues, is something that cannot belong to two objects simultaneously.

For Leibniz, then, the only way in which a relation such as a ratio is conceivable as something real is as something grounded in an accident of an object where an accident is something that belongs to an independent object. Though he does not say here that a property has to be grounded in the inner determinations of a thing, what is important is that he thinks that the reality of a relational property is grounded in an object that is independent in its properties of the object that it relates to.

With the second point Kant turns to Leibniz's conception of space and argues that it is motivated by this priority of matter over form. He claims that, given that for Leibniz objects precede their overall organization, space is only conceivable as the relations among substances, and time only through the connection of substances' determinations as grounds and consequences. It is important to note that such a conception of space comes at the exclusion of a conception of it as something that is independent of the objects. Most importantly, it comes at the cost of recognizing that space as an overall unity makes a difference to our conception of objects.

We can see here how Kant sees Leibniz's conception of space resulting from the latter's rationalism. Leibniz's rationalism dictates that the understanding's demand that matter precedes form applies to what is given in sensibility, and this means that objects are assumed to be possible independently of one another. Given this independence, space can only be conceived in relational terms insofar as a relation can be explained by or grounded in its relata.

Now with respect to the third point, Kant turns to the issue with this claim:

"And so would it in fact have to be if the pure understanding could be related to objects immediately, and if space and time were determinations of the things in themselves. But if it is only sensible intuitions in which we determine all objects merely as appearances, then the form of intuition (as a subjective constitution of sensibility) precedes all matter (the sensations), thus space and time precede all appearances and all data of [experience], and instead first make the latter possible."¹⁹⁰

Kant contrasts his view to Leibniz's, but the contrast he makes is quite complex. It involves (i) a contrast in the way in which our understanding relates to objects, whether this relation is, as he writes, 'immediate,' i.e., unconditioned, or 'mediated,' i.e., conditioned; (ii) a contrast in the conception of space (and time), whether it is something grounded in objects or something that precedes them and makes them possible; and (iii) a contrast between the objects of our cognition,

¹⁸⁹ Leibniz (1956, 71)

¹⁹⁰ (A 267/ B323).

whether we determine things as they are in themselves or whether we determine objects in sensible intuition as appearances. There is also a fourth contrast that concerns the priority relation between the cognizing subject and the object of cognition, which I want to leave aside for a moment and focus on (i)-(iii) to see how these can amount to one overall contrast.

Consider first (i) and (ii). How does the contrast in the way in which our understanding relates to things, i.e., whether this relation is conditioned or unconditioned, relate to a contrast in a conception of space, i.e., whether space is something grounded in objects or whether it precedes objects and makes them possible?

According to Leibniz, our understanding is unconditioned; it relates to things directly. We can take this as Kant's characterization of Leibniz's rationalist commitment. Now we can note that insofar as the understanding is unconditioned, this means, as explained above, that things are given in an un-in-formed, i.e., unorganized manner and thus as something independent of one another. And so the way in which things are given is not assumed to be conditioned by space and time. Instead, space and time are taken to be something conceptualized through understanding. Being something conceptualized through the understanding, they are taken to be grounded in objects and their properties as the objects are independent of one another. And the only way in which this is conceivable is in relational terms where the relation is determined by a substance's accidents.

Now according to Kant, space and time condition the understanding. This means, on the one hand, that our understanding does not relate to objects 'immediately.' And, on the other, it means that space and time are not something conceptualized through the understanding, but rather something that makes our conceptualization of objects possible in the first place. Indeed this is the point that Kant wants to motivate when he argues that our representation of space is an a priori intuition. Recall his argument that our representation of space is not a representation that *subsumes* something *under* it. Rather it is a representation that *contains* things *in* it. But if we start with independent objects and their properties, then a representation of space as such would have to be something abstracted from objects and their properties.

Let us now consider the third aspect that figures into the contrast Kant makes, which concerns the point of whether we determine things as things in themselves, or whether we determine things in space and as appearances. Again according to Leibniz, our understanding relates to things in an unconditioned manner even in the case in which something is given through sensibility. So one sense in which we relate to things as they are in themselves concerns the point that he thinks we can relate to things by abstracting from the contributions that our sensibility might make to what is given for cognition. This, according to Kant, has the consequence that we abstract from the role that 'being in the same space' plays, i.e., being part of one and the same overall whole. Thus, another sense in which we cognize things as they are in themselves is that we cognize them as being independent of one another.

Now according to Kant, it is only in sensible intuition in which we determine things. Thus, we determine things as appearances in the sense that we determine them in relation to our sensibility. But, since determining objects in sensible intuition means that we determine things as being in the same space, another sense in which we determine things as appearances is that we determine them as parts of one and the same whole and in virtue of that as being outwardly relatable to one another.¹⁹¹

Having clarified the complexity of this contrast and how the elements relate to each other, I want to suggest that we think of it as contrasting positions with respect to the problem of unity.

¹⁹¹ This latter point comes out especially if we recall Kant's argument that our representation of space is an intuition.

Recall that the problem concerns the question of how a multiplicity of things can stand in relation to one another and form one whole. And we already indicated that Kant gives a solution to this problem for the objects of our sensibility, namely that sensible objects stand in relation to one another and form one whole because space and time as the forms of our sensibility are grounds of their possibility. Now Kant's discussion of matter and form shows that he thinks that the problem ultimately turns on the priority relation between matter and form. And, as he argues, how we are to take this priority depends on how our understanding relates to objects, in particular whether this relation is conditioned by space and time as the forms of sensibility. So Kant comes to think that the problem of unity arises for Leibniz specifically with respect to his rationalism. It is his rationalism that leads Leibniz to assume that objects are possible independently of one another. We can call Leibniz's view here a *substances-first view*. Kant, by contrast, puts forth a view according to which the understanding is conditioned by space and time as the forms of sensibility. This leads him to the view that objects, taken as appearances, are possible as parts of one overall whole, a world. We can call this a *world-first view*. And insofar as Kant takes the understanding to be conditioned by the forms of sensibility, we can characterize his view as a formally sensible rationalism. The contrast then is as follows: Leibniz as a rationalist endorses a substances-first view; and this leads him to a view according to which things form a world at most in an accidental manner. Kant as a formally sensible rationalist endorses a world-first view; and this makes it possible to conceive of things as forming necessarily one world.

At this point it is worth recalling from the introduction our discussion of Aristotle's hylomorphic conception, and, in particular, the contrast in the relationship between, on the one hand, the matter and form of a house, and, on the other hand, the matter and form of Socrates. Recall that when it comes to a house, the bricks and mortar, so the matter of the house, is prior to the form of the house. But in the case of a substantial compound such as Socrates, the matter, Socrates' body, has to be already informed for it to constitute the matter of Socrates. And so in this case the form precedes the matter. The contrast that Kant makes in his discussion of matter and form is similar to this contrast between the two kinds of substantial compounds. Thus, Leibniz's substances-first view aligns with the way in which the priority of the matter of the house to the form of the house, whereas Kant argues that in our cognition, the relationship between its matter and its form is similar to the relationship between Socrates' body and his form. In the first case, the form is in an important sense accidental to the matter. It does not constitute it as matter. But in the latter case, the form is necessary for the matter; it makes it possible as the matter that forms a whole.

Let us consider briefly the fourth aspect that goes into the contrast Kant makes between Leibniz's view and his own, which concerns the priority relation between the cognizing subject and the object of cognition. In arguing that form precedes matter, Kant argues for a certain priority of the subject to the object of cognition. For the form is the form of our sensibility, so in arguing that a subjective condition makes the material of our cognition possible, Kant maintains that there is a sense in which objects conform to us. According to Leibniz's view that matter precedes form, however, the material for our cognition would be possible independently of the conditions of our sensibility, and, thus, according to Leibniz, our cognition would have to conform to objects.

The idea that objects conform to us is Kant's Copernican revolution, which he first discusses in the preface to B-edition:

“Up to now it has been assumed that all our cognition must conform to the objects; but all attempts to find out something about them a priori through concepts that would extend our cognition have, on this presupposition, come to nothing. Hence let us once try whether we do not get farther with the problems of metaphysics by assuming that the objects must conform to our cognition, which would agree better with the requested possibility of an a priori cognition of them, which is to establish something about objects before they are given to us. This would be just like the first thoughts of Copernicus, who, when he did not make good progress in the explanation of the celestial motions if he assumed that the entire celestial host revolves around the observer, tried to see if he might not have greater success if he made the observer revolve and left the stars at rest.”¹⁹²

The contrast that Kant draws with respect to the concepts of matter and form, and more generally his criticism of Leibniz’s rationalism, thus importantly involves his Copernican revolution. And the problem of unity indicates more of Kant’s motivation for this turn.

¹⁹² (Bxvi).

Chapter 5: Grasping Chirality: Kant's Argument in §13 of the Prolegomena

Overview

In the previous chapter we focused on Kant's discussion of the concepts of matter and form in the Amphiboly in which he argues that according to Leibniz matter precedes form, but according to his own view, form precedes matter. I argued that this contrast should be understood against the background of the problem of unity, and that within this context we can think about it as a contrast between a substances-first view, according to which objects are possible independently of one another, and a world-first one, according to which objects are possible as parts of a common world. We also saw that for Kant the contrast turns on the idea that space and time make a difference in their overall unity to our conception of sensible reality.

The following chapter is focused on a section from the *Prolegomena* (1783) in which Kant takes up incongruent counterparts again.¹⁹³ In section 13, Kant addresses “those who cannot yet get free of the conception, as if space and time were actual qualities attaching to things in themselves,” and argues that incongruent counterparts provide evidence for “the demotion of space and of time to mere forms of sensory intuition.”¹⁹⁴ This shows that Kant refers to incongruent counterparts in relation to the contrast he makes in his discussion of the concepts of form and matter in the Amphiboly, the contrast between a substances-first view and a world-first one. For, recall that one aspect that figures into this contrast is a contrast in the conception of space, specifically between a conception of space as something conceptualized through the understanding and a quality attaching to things in themselves, on the one hand, and the conception of space as the form of sensibility and as conditioning the understanding, on the other.

In §13 Kant argues that incongruent counterparts pose a paradox for the view that space is a quality attaching to things in themselves. And he claims that a solution requires the following way of thinking about these objects:

“These objects are surely not representations of things as they are in themselves, and as the pure understanding would cognize them, rather, they are sensory intuitions, i.e., appearances, whose possibility rests on the relation of certain things, unknown in themselves, to something else, namely our sensibility. Now, space is the form of outer intuition of this sensibility, and the inner determination of any space is possible only through the determination of the outer relation to the whole space of which the space is a part (the relation to outer sense); that is, the part is possible only through the whole, which never occurs with things in themselves as objects of the understanding alone, but does occur with mere appearances.”¹⁹⁵

¹⁹³ As others, e.g., Hogan (2021, 388), have noted the passage in the *Prolegomena* can be understood to be the endpoint of Kant's reflections on incongruent counterparts. Though he mentions incongruence again in the *Metaphysical Foundations of Natural Science* from 1768, the conclusion he draws is the same as in the *Prolegomena*.

¹⁹⁴ [Prol 4:285].

¹⁹⁵ [Prol 4:286].

Kant argues that incongruent counterparts have to be understood as appearances rather than things in themselves and he goes on to spell out what this implies. The difference is a matter of space being the form of our sensibility. On account of space being this form, he explains, the inner determination of any space is possible only through the determination of the outer relation to the whole space; the part is only possible through the whole.

Our goal in this chapter is to understand exactly this point. To this end, we first need to see why Kant thinks that incongruent counterparts pose a paradox for the conception of space as it is part of the substances-first view. Secondly, it needs to be spelled out how a resolution of this paradox calls for the view that space is the form of sensibility on account of which ‘the inner determination of any space is possible only through the determination of the outer relation to the whole space.’ How do incongruent counterparts call for a world-first view?

In order to answer these points, I first offer an overview in §5.1 of some prominent interpretations of §13. This will bring out some of the challenges this passage poses and it will highlight the relevance of the amphiboly of matter and form. I then explain in §5.2 why Kant sees a paradox in incongruent counterparts for the view that takes space to be a quality of things in themselves. I then turn in §5.3 to his solution.

5.1 Interpretations of Prolegomena §13

As with Kant’s 1768 essay, some interpreters of §13 of the *Prolegomena* are not primarily interested in Kant’s discussion of incongruent counterparts with respect to its significance for his Critical system. Instead they are curious about the philosophical significance of these pairs of objects more generally. However, unlike in his 1768 essay, Kant discusses incongruent counterparts not in relation to the question over the nature of space. But, continuously with the discussion in the *Dissertation*, he is focusing on our grasp of the difference. And he argues that incongruent counterparts reveal that there are limitations to a purely conceptual grasp of objects. Some commentators on this section, e.g., Jonathan Bennett, have focused on this anti-conceptualist point and what it tells us about limitations of linguistic expression.¹⁹⁶ Bennett takes Kant’s main claim to be that “an explanation of the meanings of ‘right’ and ‘left’ requires *showing*, i.e. demands an appeal to sensorily presented examples.”¹⁹⁷ Below I will touch on the contrast between concepts and intuitions. However, I will leave aside the question of how much Kant’s point generalizes not just to an anti-Leibnizian point, but to an anti-conceptualist point, since my focus, at least in the context of this dissertation, is on the significance of incongruent counterparts for Kant’s critical system.

Other commentators are interested in the development of Kant’s Critical system and consider §13 in relation to Kant’s earlier discussions of incongruent counterparts. But, as already noted in the introduction, an obstacle presents itself for the attempt to read off the development of Kant’s thought from his various discussions of incongruent counterparts. It is not clear how the discussions relate to one another. In chapter one we saw that Kant initially takes incongruent counterparts to support a certain view on the nature of space, that space has a reality of its own,

¹⁹⁶Bennett (1970).

¹⁹⁷ See Bennett (1970, 3). I do not think that this is Kant’s point though. I take the point to be that our grasp of the difference between incongruent counterparts depends on space in its unity and thus on the form of our sensibility. The anti-conceptualist thrust concerns the idea that a purely conceptual grasp involves a part-to-whole structure, which contrasts to the way in which an intuitive grasp involves a whole-to-part structure.

independently of objects. In chapter three we saw that in the *Inaugural Dissertation* from 1770, he takes the difference between left and right to support an epistemological claim, that our representation of space is an a priori intuition. Now, in the *Prolegomena*, he seems to put incongruent counterparts to yet another purpose, namely to support the transcendental idealist claim that space and time are mere forms of sensibility and not properties of things in themselves. These changes have prompted some to argue that there is no common thread to all these discussions. And not only that, some, e.g., Norman Kemp Smith, have claimed that the conclusion Kant draws from incongruent counterparts in the *Prolegomena* is *opposite* from the conclusion he draws in his 1768 essay:

“There is no mention of this argument [i.e., the argument from incongruous counterparts] in the first edition of the *Critique*, and when it reappears in the *Prolegomena* it is interpreted in the light of an additional premiss, and is made to yield a very different conclusion from that drawn in the *Dissertation*, and a *directly opposite conclusion* from that drawn in 1768. Instead of being employed to establish either the intuitive character of space or its absolute existence, it is cited as evidence in proof of its subjectivity.”¹⁹⁸

The additional premise of which Kemp Smith says that it leads Kant to the opposite conclusion is a claim about things in themselves, namely, that they “are, as such, unconditioned, and cannot, therefore, be dependent upon anything beyond themselves.”¹⁹⁹ However, Kemp Smith regards this premise as problematic, as it is “one which is entirely out of harmony with the teaching of the *Critique*.”²⁰⁰

Kemp Smith is touching here on what has become one of the main interpretative challenges of §13. Kant argues in the *Critique* that we cannot have knowledge of things in themselves. Yet the additional premise seems to amount to a substantial claim about these kinds of objects. How is Kant entitled to this claim in light of his own critical strictures? Following Desmond Hogan’s terminology, I will call this issue the entitlement problem.²⁰¹

Kemp Smith dismisses the argument in §13 on account of this problem. He thinks that Kant has “unconsciously reverted to the dogmatic standpoint of the *Dissertation*.”²⁰² I think this verdict is slightly complicated by the question of whether the standpoint that Kant presents in the

¹⁹⁸ Kemp Smith (1991, 45).

¹⁹⁹ Kemp Smith (1991, 45.f).

²⁰⁰ Kemp Smith (1991, 46).

²⁰¹ Hogan (2021).

²⁰² Kemp Smith (1991, 46). In this verdict over Kant’s argument, Kemp Smith follows Hans Vaihinger (1892, 528), who reads Kant’s use of ‘thing in itself’ in the *Prolegomena* as archaic and a residue of his earlier views: “As already remarked upon above at p.522 Comm., the whole argumentation from 1783 (and 1786) rests on the presupposition that things in themselves were ‘objects of the pure understanding.’ Only on the basis of this presupposition did Kant conclude from the presence of conceptually identical and intuitively non congruent objects to their ideality. This presupposition is however the counterplay to Kantian Criticism and an archaic fallback into dogmatism. The whole proof value of the famous argument is in this way through the imminent Critique reduced to null without yet any consideration.” (“Wie schon oben S. 522 Anm. bemerkt wurde, beruht ja die ganze Argumentation von 1783 (und 1786) auf der Voraussetzung, die Dinge an sich seien ‘Gegenstände des blossen Verstandes’. Nur auf Grund dieser Voraussetzung hat ja Kant daselbst aus dem Vorhandensein begrifflich identischer und sich anschaulich nicht congruierender Gegenstände auf deren Idealität geschlossen. Jene Voraussetzung ist ja aber das Widerspiel des Kantischen Criticismus und ein archaischer Rückfall in den Dogmatismus. So wird also durch diese immanente Kritik, noch ohne jegliche Erwägung, der ganze Beweiswerth des berühmten Argumentes auf Null reduciert.”)

Dissertation amounts to a dogmatic one. For example, in the latter work Kant criticizes the view that takes sensible cognition to be merely confused cognition.²⁰³ This shows one way in which he seeks to distance himself from the dogmatic standpoint of his rationalist predecessors. Still it is true that in the *Dissertation* Kant thinks that pure intellectual cognition is possible and that we can have knowledge of things in themselves. As mentioned in the last chapter, he does not think yet that our understanding is conditioned by the forms of sensibility more generally. But it is unclear whether Kant falls back into the view according to which the understanding is unconditioned with his argument in §13, and I think Kemp Smith is too quick in dismissing the argument.

A slightly more charitable reading of the argument is given by Anja Jauernig.²⁰⁴ She describes the argument as “odd,” but suggests a way to make sense of Kant’s reasoning on pedagogical grounds. She notes that it follows an argumentative strategy discernible in other passages as well – Jauernig notably points to the *Amphiboly* – all of which share in common that Kant engages with the view of his Leibnizian predecessors. She reconstructs the argumentative strategy to be such as to rely on a claim about things in themselves, that they have a certain feature F, of which it is then argued that empirical objects do not have this feature. Kant is then said to conclude on this basis that empirical objects are not things in themselves. Jauernig calls the argument ‘odd’ because the feature ascribed to things in themselves is a feature that we are not in a position to know about things in themselves according to Kant’s Critical position, but it is a feature that the ‘Leibniz-Wolffians’ would ascribe to things in themselves.²⁰⁵ The features she identifies and of which she maintains that they amount to the ‘Leibniz-Wolffian’ conception of a thing in itself are the following:

“(1) [T]hings in themselves are such that, if they are composite, the parts are ontologically prior to the whole, (2) they are simple or composed of simples, (3) they can be fully cognized in terms of pure concepts alone. (4-a) they have intrinsic determinations, and, more strongly, (4-b) they are individuated by intrinsic determinations alone, (5) the ‘realities’ or positive determinations possessed by them are only opposed to their respective negations but not to each other—which also means that no thing in itself can possess a determination and its opposite at the same time (for nothing can be F and not F)—and, (6) they are such that ‘matter’ precedes ‘form,’ which means, among other things, that they are ontologically prior to their relations.”²⁰⁶

The argument in §13 is said to involve specifically (3). So in her view the argument is that things in themselves can be fully cognized by concepts alone but that incongruent counterparts show that empirical objects cannot be fully cognized in this way.

Relying on a Leibniz-Wolffian feature, Jauernig thinks that Kant intends the argument to engage a certain kind of readership, i.e., those that are still attached to the Leibnizian paradigm:

²⁰³ See [ID 2:394f], specifically §7.

²⁰⁴ Jauernig (2021), in particular chapter six.

²⁰⁵ Another reason Jauernig calls these arguments odd is to contrast them to Kant’s canonical arguments for idealism, especially his argument in the *Transcendental Aesthetic*.

²⁰⁶ Jauernig (2021, 321).

“Kant will have anticipated this group to make up a significant contingent of his readership, not only because of the lingering popularity of Leibniz-Wolffianism in late eighteenth-century Germany, but also because of his belief, just discussed, that the Leibniz-Wolffian conception of things in themselves is natural, useful, and ‘correct’ from the perspective of traditional metaphysics, which suggests that it is bound to retain a certain popularity for times to come. And so it is quite understandable, especially from a pedagogical perspective, why Kant would have employed the odd argument in mounting his case. His intention is to force the Leibniz-Wolffians and company to admit that, by their own lights, empirical objects cannot be identified with things in themselves, as conceived by them, not even confusedly perceived ones, but must be seen as entities of a fundamentally different kind.”²⁰⁷

Being aimed at engaging a view which is to be discarded, Jauernig suggests that Kant’s argument can be compared to Wittgenstein’s ladder: it is an argument that is intended to reach a new point of view, i.e., transcendental idealism, from which the prop used to reach this height becomes meaningless.²⁰⁸

The comparison to Wittgenstein’s ladder comes too quickly though. As noted by Hogan, a “[c]learheaded application of a Wittgenstein’s ladder reading to [Kant’s] “demotion” of space should conclude that [the Leibnizian opponent] lacks legitimate grounds from a critical perspective, so that the idealist conclusion is never stably attained.”²⁰⁹ Jauernig might counter to this that she does not think that the “odd argument” attains the idealist conclusion stably; after all Kant gives a different, according to Jauernig non-odd argument in the Transcendental Aesthetic and the Transcendental Dialectic. However, Hogan is right to raise the question whether Kant’s point is just to show that the Leibnizian’s lack legitimate grounds from the Critical perspective. This seems weaker than what he intends, and I agree with Hogan’s observation that Kant presents Leibniz’s view “not as merely unknowable but as knowably false.”²¹⁰ In my view, one issue about Jauernig’s reconstruction is that she does not account for the extent to which Kant approves of the Leibnizian view. A point that is brought out by relating the argument to Kant’s discussion of the concepts matter and form in the Amphiboly is that he thinks that the Leibnizian doctrines ultimately stem from a genuine demand of the understanding. Where they go wrong is in their rationalism that leads them to think that this demand finds its unconditioned application to what is given in our sensibility.

Another, probably more pressing issue that I see for Jauernig is that she focuses only on the way in which incongruent counterparts pose a problem for the Leibnizians. But not only do they pose such a problem, Kant also thinks that these objects motivate an alternative view, namely that space is the form of sensibility. As we will see, one important point here is that incongruent counterparts do not just show that empirical objects lack something which is said to apply to things in themselves. But they show that the cognizable character of empirical objects is in a certain way the inverse to the one of things in themselves, i.e., the cognitive character objects would have according to the demand of the pure understanding.²¹¹

²⁰⁷ Jauernig (2021, 347).

²⁰⁸ See Wittgenstein’s *Tractatus*, 6.54.

²⁰⁹ Hogan (2021, 413).

²¹⁰ Hogan (*ibid.*).

²¹¹ Relatedly, I think that the list of features that Jauernig identifies is important and that it raises the question how all these features are related. Is there some rationale or principle that underlies these features all at once? That there is a

Now some have tried to reconstruct Kant's argument in such a way as to fully vindicate his claim that it is never true of things in themselves that the parts precede the whole even in light of his Critical view that we cannot have knowledge of things in themselves. One strategy has been to argue that Kant is entitled to claims about things in themselves insofar as these claims are based on analytic principles. This strategy is pursued in particular by Jill Vance Buroker and by James van Cleve.²¹²

In *Space and Incongruence*, Buroker gives a systematic treatment of all of Kant's discussions of incongruent counterparts including his discussion in §13 of the *Prolegomena*. Unlike Kemp Smith, she thinks that the various discussions build on one another and that there is a discernible progression to Kant's thought.²¹³ In particular, while the argument in the *Dissertation* relies on Kant's 1768 analysis of incongruent counterparts, which Buroker takes to show that "whether left and right hands could be made to coincide depends on the space in which the hands exist," she takes the argument in the *Prolegomena* to be at once a more detailed version of the discussion in the *Dissertation*, but also to go beyond the latter in its overall conclusion.²¹⁴ In her view, the argument in the *Dissertation* is intended to show that knowledge of space is irreducibly sensible on which the *Prolegomena* discussion builds to argue that space is merely subjective.

Buroker's interpretation centers on two principles, the reducibility principle and what she calls the correspondence principle. The reducibility principle is a principle which is commonly attributed to Leibniz.²¹⁵ It states that, for things in themselves, relations are reducible to non-relational properties.²¹⁶ Buroker argues that Kant himself endorses this principle – a point that has been contested by others.²¹⁷ The correspondence principle is a metaphysical principle that stems from Leibniz's theory of sensibility, specifically the theory of well-founded phenomena. According to this theory "objects known by the senses represent, albeit confusedly, properties and relations of intelligible substances."²¹⁸ Buroker takes this epistemological view to

relation, and thus, some common principle, is strongly suggested by Kant's discussion of incongruent counterparts which does not just involve the feature listed under (3), that things in themselves can be fully cognized in terms of pure concepts alone, but Kant also brings in the features listed under (4-b), that things in themselves are individuated by their intrinsic determinations; and, most importantly, they involve the feature under (6), that things in themselves are such that matter precedes form. In my view the feature in (6) is more fundamental than the other ones, and ultimately these features originate from the notion that the understanding's demand finds its unconditioned application to the material of our cognition.

²¹² Buroker (1981) and Van Cleve (1999).

²¹³ Buroker is not the first to discern a common line of thought. Vaihinger also observes a common thread. In particular, he observes that Kant's pre-Critical and Critical discussions share the view in common that "space as a whole is said to precede its parts and to make the latter first possible." (p.526) I will return to Vaihinger's observation below.

²¹⁴ Buroker (1981, 83).

²¹⁵ For example, William Kneale and Martha Kneale (1962), Bertrand Russell (1900), and G.H.R. Parkinson (1965) attribute the principle to Leibniz, whereas Hidé Ishiguro (1972) argues that Leibniz did not endorse it. See Buroker's second chapter for a helpful overview.

²¹⁶ It is controversial whether Leibniz endorsed this strong version of the principle. He might have only endorsed the weaker version that relations supervene or correspond to non-relational properties of things in themselves. Buroker gives a helpful overview in chapter two of (1981).

²¹⁷ Buroker argues for Kant's endorsement of this principle on the basis of the Amphiboly, see (1981, 84). Though I think the Amphiboly gives the right context for an interpretation of the *Prolegomena* passage, I disagree with her reading of this section. For example, she interprets the view that matter presupposes form to mean that relations presuppose their relata. But I think that form is not tantamount to relations for Kant. In particular, form implies a sense of unity that is lost when we just speak of relations.

²¹⁸ Buroker (1981, 82).

motivate the metaphysical claim that there is a correspondence between phenomena and noumena.

Against this background, Buroker suggests that incongruent counterparts raise issues specifically for the correspondence principle and thus for Leibniz's theory of sensibility. First of all, she argues that the analysis of incongruence leads to a paradox on account of this correspondence, as it would lead to the ascription of contradictory properties to the noumena that would underlie incongruent counterparts. She then motivates, on this basis, what she takes to be Kant's conclusion from incongruence in the *Dissertation*, i.e., that space is irreducibly sensible. This means, her thought goes, that there is no correspondence between phenomena and noumena as Leibniz intends. Here the reducibility principle comes into play. The reducibility principle would demand that if space is a determination of things in themselves, then, qua system of spatial relations, it could not exist independently of substances or their phenomenal manifestations. However, incongruence shows that space is independent of spatial objects.²¹⁹ And so "[i]n the world of sensible phenomena there are relations (among the parts of space) that cannot be derived from the non-relational properties of objects in space alone."²²⁰ This means that space is irreducibly sensible insofar as relations as conceived by the understanding are dependent on the properties of things in themselves, but spatial relations are not so dependent. Spatial experience thus cannot correspond to the properties and relations of intelligible substances. And so the Correspondence principle is false; "[s]ensible experience cannot be analyzed as incomplete knowledge by the understanding because some sensible (spatial) relations are independent of the things so related."²²¹

Now, as mentioned, Buroker takes Kant's point in the *Prolegomena* to go beyond his point in the *Dissertation* insofar as she takes him to argue in the former that space is merely subjective. And she thinks the subjectivity follows from the denial of the Correspondence principle:

"The mere subjectivity of space also follows from this denial of Leibniz's Correspondence Principle. Both Leibniz and Kant believe that space is the system of possible relations among sensible phenomena. But if phenomenal objects are governed by a system of relations independent of those objects, whereas relations of noumenal substances are not so governed, the spatial properties and relations among phenomena do not correspond to the relational features of noumena. Hence space in no way represents noumena, even incompletely or 'confusedly'. As a system of relations standing independently of the things related in it, the representation of space 'applies' only to things that can be known by the senses and not at all to merely intelligible entities. Consequently, things in themselves are in no way spatial."²²²

²¹⁹ I do not think that this is really what incongruent counterparts are intended to show. Though they speak to an independence of space, I think what is more important is that they show that space as an overall unity makes a difference to the possibility of objects. And I think this point already comes out in the *Dissertation*, insofar as Kant wants to motivate the idea that space as an overall unity is prior to the representation of objects and makes their representation (specifically as outer objects) possible in the first place.

²²⁰ Buroker (1981, 85).

²²¹ Buroker (ibid.).

²²² Buroker (1981, 100).

In pointing out that there is an important difference between phenomena and noumena regarding their structural properties, I think Buroker is touching on the significance that incongruent counterparts have for Kant. However, I do not think that the difference in these properties that is highlighted by incongruent counterparts concerns the reducibility principle, and it is not quite clear how Kant thinks about the reducibility of relations. E.g., Rae Langton argues that Kant does not endorse this principle.²²³

Moverover, Buroker's reconstruction runs into the following issue: The argumentative force of the way in which incongruent counterparts create a paradox for Leibniz's view is lost on her reading. For she leaves it unclear how the paradox relates to the contrast Kant makes between appearances, i.e., objects of our sensibility, and things in themselves, understood as objects as the pure understanding would cognize them. Why, one is consequently left to wonder, is the view that incongruent counterparts are appearances, which Kant explicates to be objects, the inner determination of which is possible only through their outer relation to space, a solution to the paradox? An issue in the background is that there is a question of how exactly the problem around incongruent counterparts relates to Leibniz's rationalism. Buroker makes the important point that Kant's discussions of incongruence target Leibniz's rationalist metaphysics and epistemology. But she pins this rationalism down at Leibniz's theory of well-founded phenomena. But what is it about Leibniz's rationalism that commits him to this theory?²²⁴ I can see that there is an answer to this, but I think a more straightforward way of showing that incongruent counterparts create a problem for Leibniz's rationalism comes into view when we relate the problem to the discussion of matter and form in the *Amphiboly*. For as we saw in the last chapter, in this discussion Kant motivates Leibniz's view of space by his rationalism and specifically how this commits Leibniz to the view that matter precedes form. Thus, I think that, instead of invoking the reducibility principle and the correspondence principle, we should consider the priority relations between form and matter, as well as the related priority relations between whole and parts. A focus on these draws out Kant's issue with Leibniz, which concerns the difference that space as a unity makes for the way in which the objects of our cognition are possible as parts of a whole.

Buroker's idea that the reducibility principle provides a key premise in Kant's argument was taken up by James Van Cleve. In *Problems for Kant*, he reconstructs Kant's reasoning as follows:

- “1. Incongruent counterparts (e.g. Kant's two spherical triangles) are different in virtue of their differing relations to space as a whole. (Thus, triangle 1 bears R to space and triangle 2 does not.)
2. All relations among things in themselves are reducible to nonrelational characters (qualities) of the relata.
3. Therefore, if space and figures within it are things in themselves, triangle 1 must differ internally from triangle 2.
4. But, in fact, triangle 1 does not differ internally from triangle 2.

²²³ Langton (1998).

²²⁴ To be a bit more nitpicking, why mark Leibniz's rationalism with respect to a view that has to do with his view about the relation of the world to our sensibility, rather than marking it with respect to the relation of the world to our intellect? Leibniz's rationalism amounts to a dismissal of a role of our sensibility, and the theory of well-founded phenomena stems from this dismissal. But it seems that it would get things backwards to think that a view that phenomena are well-founded motivates the view that our intellect relates to things in an unconditioned manner.

5. Therefore, space itself and figures within it are not things in themselves.”²²⁵

Though this reconstruction seems to make for a clear and straightforward argument and might seem an improvement over Buroker’s interpretation, which is overall less straightforward, there are a few issues with it. There is of course the problem of relying on the reducibility principle. But aside from this, the elegance of Van Cleve’s reconstruction comes at the cost of understanding space as a possible relatum that, if something in itself, would be subject to the reducibility principle. Only in this way can premise three be obtained. This seems an oversimplification to me. I think part of Buroker’s reason for a more complicated reconstruction is that she is aware that Kant - whether or not he adheres to the reducibility principle - would not think that space could fall under the scope of this principle given that Kant understands space itself as *a system* of relations; it just is not the kind of unity that can bear the kind of relation to an object that can hold between two individual objects.

Furthermore, it is rather unclear why Leibniz should be moved by this argument. He would likely respond that the difference between incongruent counterparts results from the chimerical assumption of the existence of an absolute space.²²⁶ The point that is overlooked here is that Kant thinks that the difference between incongruent counterparts is an inner difference and thus something that Leibniz cannot easily dismiss as merely imaginary.²²⁷

We can note, though, that Buroker and Van Cleve’s interpretation seems to succeed when it comes to the entitlement problem. They justify Kant’s claim about things in themselves by grounding it in the reducibility principle. And, crucially in relation to this issue, they argue that this principle is analytic. I think that, as a defense strategy, this is on the right track. But, as already mentioned, Kant seems to reject the reducibility principle, which in turn calls its analyticity into question. However, the place that Buroker considers to motivate Kant’s endorsement of the reducibility principle is noteworthy. She tries to obtain a justification for this principle from his discussion of the concepts of matter and form in the Amphiboly. I think this is the right place to look. In particular, I think the demand of the understanding that Kant identifies in this passage indicates an answer to this problem. I discuss this point later in §5.3.

Desmond Hogan has criticized both Buroker’s and Van Cleve’s strategy precisely for the point that Kant thinks that relations do not reduce to non-relational properties.²²⁸ And he gives an interpretation of the *Prolegomena* section that centers on the thread noted by Vaihinger, that space as a whole is said to precede its parts and to make the latter first possible. Hogan builds on this observation aiming for a more ambitious interpretation which gives a unified reading of Kant’s idealism, “one encompassing the canonical idealist arguments of the *Critique of Pure Reason*.”²²⁹ To obtain such a unified reading, he claims that the argument rests essentially on Kant’s theory of freedom.

Hogan reconstructs the argument in §13 as follows:

“1. ‘It is never (niemals) the case for things in themselves as objects of the understanding...that the part is possible only through the whole’(4:286)

²²⁵ Van Cleve (1999, 47).

²²⁶ E.g., see his argument for this claim in his third letter to Clarke.

²²⁷ For example, the difference between incongruent counterparts cannot be overcome through a translation or a rotation. This sets this difference apart from other differences of which Leibniz argues that they indicate that space is something merely chimerical, such as a difference in location.

²²⁸ Hogan (2021).

²²⁹ Hogan (2021, 386).

2. Spatial objects are such [that] their parts are ‘possible only through the whole’—‘the intrinsic determination of any space (eines jeden Raumes) is possible only through the determination of the outer relation to the whole space of which the space is a part’(4:286)
3. [Therefore,] No spatial objects are things in themselves as objects of the understanding.”²³⁰

And he notes that Kant’s point “is that we cannot regard spatial objects as ontologically grounded in the same way in which we must supposedly conceive of things in themselves.”²³¹

Hogan then mainly focuses on the question how Kant is entitled to the first premise. And in answering this question he turns to Kant’s theory of freedom. In order to draw a connection between Kant’s discussion about incongruence and his practical views, Hogan argues first that Kant takes incongruence to unveil a “qualified priority monism”. Priority monism is the view according to which “a whole is metaphysically prior to and ontologically grounds its parts.”²³² And Hogan characterizes the monism that Kant puts forth as qualified “insofar as it does not assert that no properties of extended objects are grounded in their parts.”²³³ Next, Hogan argues that this partial priority monism doubles as a causal monism, i.e., a monism according to which space as a whole constrains the causal relations among bits of matter. This in turn would mean that if space was real, then a problematic determinism, close to a Spinozistic necessitarianism, would await. Such a determinism would conflict with Kant’s conception of freedom, specifically as it is required for morality. According to Kant’s conception for an act to be free it must be absolute contingent, i.e., it must exclude any kind of necessitation by antecedent causes. Now this world of freedom, Hogan goes on to argue, is disclosed by the pure understanding. Thus, insofar as the world of the understanding is one in which we are absolutely free, it can never be the case for this world that the whole precedes the part.

I think Hogan’s reconstruction of the argument is basically right when it comes to Kant’s view that incongruent counterparts are not things in themselves. I also think that Kant’s reason for thinking that these objects are not objects of the pure understanding is that their mereological structure is such as to be possible as parts of a whole. However, similar to Van Cleve, Hogan leaves it unclear how exactly incongruent counterparts in this character create a paradox for Leibniz, specifically in his view that space is a quality of things in themselves.

Hogan’s wide-looking solution to the entitlement problem, and especially the way in which he relates Kant’s discussion of incongruent counterparts to his views on freedom, is interesting when it comes to the project of giving a unified reading of Kant’s idealism and of his theoretical and practical views. And the question about the possibility of freedom may very well enter into Kant’s considerations. However I do not think that they are the driving reasons in his argument in §13. Indeed Hogan’s interpretation makes it difficult to connect Kant’s solution that incongruent counterparts are objects that are subject to ‘monistic constraints’ to the point that they create a paradox for a view according to which these objects are objects of the pure understanding, where this means to him that they are free of such constraints. When it comes to motivating Kant’s claim that ‘it is never true for things in themselves as they are conceptualized by the pure understanding that the whole precedes the part’ again a more readily solution to the

²³⁰ Hogan (2021, 405), additions in square brackets are mine.

²³¹ Hogan (ibid.).

²³² Hogan (2021, 408).

²³³ Hogan (ibid.).

entitlement problem comes into view once we relate the passage to Kant's discussion of the concepts of matter and form in the *Amphiboly*.

5.2 The Paradox of Incongruence

In the following section I want to suggest that according to Kant, incongruent counterparts pose a paradox for the view that space is a determination of things in themselves in the way in which this conception relates to the principle that matter precedes form, and the substances-first picture, which, as we saw in the last chapter, Kant argues results from the rationalist view that things are cognized solely by the pure understanding.

Kant raises the paradox as follows:

“[1] If two things are fully the same in all the parts of each that can always be cognized by itself alone (in all determinations belonging to magnitude and quality), it should indeed then follow that one, in all cases and respects, can be put in the place of the other, without this exchange causing the least recognizable difference. In fact this is how things stand with plane figures in geometry; [2] yet various spherical figures, notwithstanding this sort of complete inner agreement, nonetheless reveal such a difference in their outer relation that one cannot in any case be put in the place of the other; e.g., two spherical triangles from each of the hemispheres, which have an arc of the equator for a common base, can be fully equal with respect to their sides as well as their angles, so that nothing will be found in either, when it is fully described by itself, that is not also in the description of the other, and still one cannot be put in the place of the other (that is, in the opposite hemisphere); and [3] here is then after all an inner difference between the triangles that no understanding can specify as inner, and that reveals itself only through the outer relation in space.”²³⁴

Let us first consider Kant's statements in [1]. Kant spells out a principle according to which two objects that are the same with respect to “all the parts of each that can always be cognized by itself alone,” which he clarifies in the parenthetical remark to mean the determinations which belong to magnitude and quality, are substitutable in all cases and all respects.

One might initially think that Kant invokes a version of Leibniz's principle of the identity of indiscernibles (PII), which states that if two objects agree with respect to all their inner determinations, then they are identical.²³⁵ However, the idea that Kant is invoking here, or

²³⁴[*Prolegomena* 4:285f., bracketed numbers are mine]. I have slightly changed Hatfield's translation. In the first sentence, I have changed the order of appearance of the parenthetical remark to follow closer to the way in which Kant organizes the sentence. This does not change the meaning, but makes clearer that the parenthetical remark is an explication of “all the parts of each that can always be cognized by itself alone”.

²³⁵Buroker treats the principle Kant states in [1] when she writes: “As stated in the *Prolegomena* the argument takes the form of a paradox involving Leibniz's principle of the Identity of Indiscernibles and the theory of well-founded phenomena. As we saw in Chapter Two, the Identity of Indiscernibles asserts that things that are qualitatively identical are also numerically identical; all numerical differences are accompanied by differences in the properties of things. Now one criterion for qualitative identity is substitutivity; two things are completely substitutable if and only if they have the same properties,” (1981, 82).

elsewhere in §13, PII seems to me misguided. Even though there are several points at which this principle appears to be relevant, e.g., when Kant speaks of an inner agreement in [2], Kant does not make any claim as to the numerical identity of objects. Furthermore, similar to his view on the reducibility principle, Kant's own position on the identity of indiscernibles is unclear. He criticizes PII in his pre-Critical writings.²³⁶ And at the Critical stage, in particular in the Amphiboly, he argues that the principle, like the principle that matter precedes form, results from Leibniz's rationalism.²³⁷

Rather than relating qualitative and numerical sameness, I suggest to understand the substitutability principle in [1] as a principle that concerns the relationship between spatial objects as matter and their organization into an overall unity, i.e., their form. In particular, I think that the principle can be understood as testing the adequacy of Leibniz's conception of space with respect to the way in which it stems from the priority of matter over form, that is, the commitment to a substances-first view – its rationalist streak, we might say.

This way of understanding the principle suggests, in turn, a way of understanding Kant's use of the notion of inner. In particular, when Kant talks about the *inner* properties of objects in this context, I take him to denote those properties in virtue of which objects are possible as the matter that forms an overall whole. I think that the reason Kant calls these 'inner' is to make clear that they are the spatial properties that speak to an *independence* of the objects from one another. They are properties that are ascribed to an object by itself and not in relation to another object.²³⁸ For this reason it seems that these properties ought to be grounded in objects as independently existing things, as Leibniz attempts to do. An outer property is accordingly one that is ascribed to an object on account of a relation to another object.

Now when it is assumed that matter precedes form, then it is assumed that the objects' inner spatial properties are possible independently of the way in which they form an overall space. By contrast, when it is assumed that form precedes matter, then the inner spatial properties are made possible by space as an overall unity.

In order to substantiate this reading, recall, first, from the previous chapter that for Kant the contrast between Leibniz's view that space is a determination of things in themselves and his view that space is the form of sensibility concerns the question of whether matter precedes form, where this means that objects are possible independently of the way in which they form an overall unity and make the latter possible, or whether form precedes matter, where this means that the overall organization into a whole precedes objects and makes them possible. Now in [1] Kant is considering the sameness of two objects with respect to "all the parts of each that can

²³⁶ For example, in the *New Elucidation* he has quite harsh words for the endorsement and defense of this principle when he writes "That there is no substance in the entire totality of things which is in all respects like any other substance. This principle is called the principle of the identity of indiscernibles. Taken in the widest sense, as it usually is, it could not be further from the truth. [...] It is constantly being said that if two substances agree completely in all other respects, then there is no reason why God should assign different places to them. What nonsense! It amazes me that grown men of the greatest gravity should take delight in such frivolous arguments!"[ND 1:409]

²³⁷ In my view Kant's argument that PII results from Leibniz's rationalism is second-string to his points about the concepts of matter and form. For, only once it is recognized that space as a whole makes a difference to our conception of objects is the principle, that objects with identical inner properties are numerically identical, called into question. Once space is recognized to make such a difference, objects can be assumed to be sufficiently individuated by their outer properties as well.

²³⁸ Recall here the notion of matter in *Dissertation*. I explained that the independence of objects from one another is what defines them as the matter that forms a world.

always be cognized by itself alone.”²³⁹ We can think of the spatial properties that can be attributed to an object by this way of considering them as those properties that can be attributed to objects independently of their organization as a whole. Let us call these determinations ‘the understanding’s spatial properties.’ When Kant then asks whether two objects that agree with respect to all these properties can be substituted for one another, the question is whether the understanding’s properties sufficiently determine the way in which objects make for the matter that forms an overall whole. For, a way to think about the consideration of substitutability is to test whether the two objects are the same part with respect to space as a whole. More specifically, if we ask whether two objects are substitutable in all possible contexts, we ask if they are the same part with respect to space as a whole, as it is space as a whole that grounds all possible contexts.

In [2], Kant turns to incongruent counterparts. I take him to invoke them in order to call the idea into question that objects make for the matter that forms a whole in virtue of the understanding’s properties. He explains the notion of incongruent counterparts with respect to the example of two spherical triangles. These kinds of triangles can be fully equal with respect to their angles and sides ‘so that nothing will be found in either, when it is fully described by itself, that is not also in the description of the other,’ yet they still cannot be substituted. The angles and sides of the triangle are the properties that make for the understanding’s spatial properties. They are the properties that can be discerned by taking the objects by themselves, independently of the way in which they form a whole.

The fact that the triangles cannot be substituted even though they agree with respect to those properties brings Kant to the paradox, which he states in [3]. He notes that there is “after all an inner difference between the triangles that no understanding can specify as inner, and that reveals itself only through the outer relation in space.” The issue here is that there is no inner difference between the triangles that can be discerned by considering the triangles independently of being in space and with respect to the understanding’s properties. For, recall from the first chapter that the difference between incongruent counterparts is a matter of a difference in the sides towards which their parts are organized or constructed, where the difference in sides is a matter of objects being given in space as a whole. Now since the difference is a matter of the objects being in space as a whole, the difference cannot be discerned unless the objects are considered as to their substitutability. For considering the substitutability of the objects, they are considered precisely in relation to space as a whole.

The non-substitutability, Kant claims, reveals an inner difference. The point is that being non-substitutable there is a difference in the way in which these objects make for the matter that forms an overall whole. In other words, there is a difference with respect to the way in which these objects are independent of one another. For, the difference is between the objects themselves independently of any relations to other objects. Yet it concerns them with respect to how they are given in space as a whole.

We can then formulate the paradox more succinctly as follows: There is a difference between incongruent counterparts as to the way in which they constitute the matter that forms an overall whole and thus as to the way in which they are independent of one another, but if we

²³⁹ It is worth clarifying that even though Kant writes of the identity with respect to ‘all the parts’ of the objects, we should assume that he also has in mind an identity of the way in which the parts relate to each other. This point goes back to our discussion of the construction of a counterpart in the first chapter. Recall, in particular, that on account of the symmetry, incongruent counterparts exhibit an identity in the way in which their parts relate to each other.

consider them solely as matter, that is, independently of the way in which they form an overall whole, there is no difference.

Before we move on to Kant's solution, I want to briefly consider other ways in which the paradox has been framed. Vaihinger states the paradox as follows:

“Now wherein does the “paradox” consist in these cases? What is against all expectations therein? One would expect that things, which are completely the same in all their parts, [things] that are, in particular, completely **alike** in their shape, [and] the **same** in the size of their extensions, that such things can be mutually **substituted** in all cases, without having to recognize the substitution; conceptually absolutely identical objects, which exactly yield this definition, should be mutually substitutable such that the one could be placed in the position of the other without any difficulties. This expectation is, however, disappointed in certain cases: the right and the left hand, or two spherical triangles that share a [common] arc on the equator as their base, might be absolutely the same in all their parts; still they do not let themselves be intuitively included in the same boundaries aside their absolutely identical conceptual definition. The “paradox” consists in that between conceptually absolutely identical structures [Gebilde] there is an intuitive difference, which prevents the congruence. This is against expectation, this is a puzzle.”²⁴⁰

Vaihinger takes Kant's principle of substitutability in [1] to express a natural expectation. He frames this expectation invoking the difference between a conceptual and an intuitive representation, saying that the natural expectation is that conceptually identical objects should be substitutable. And he locates the paradox in the issue that incongruent counterparts are conceptually identical but intuitively different. Kemp Smith follows him in this characterization of the paradox, describing it as consisting “in the fact that bodies and spherical figures, conceptually considered, can be absolutely identical, and yet for intuition remain diverse.”²⁴¹ A question that arises then is how my framing of the paradox relates to theirs. This question can be addressed once we see how the difference in a conceptual and intuitive representation relates to the contrast between matter preceding form and form preceding matter.

Let us first note that it is worth being more cautious in framing the issue with respect to the contrast between concepts and intuitions. One might misunderstand Kant's claim to be that the difference between incongruent counterparts cannot be expressed in a conceptual way. As noted by Bennett, this would obviously be false since we can describe, e.g., one hand as left and

²⁴⁰ Vaihinger (1892, 521). - “Worin nun besteht das “Paradoxe” dieser Fälle? Was ist darin wider alle Erwartung? Zu erwarten wäre, dass Dinge, die an allen Stücken völlig einerlei sind, insbesondere der Figure völlig **ähnlich**, der Grösse der Ausdehnung nach völlig **gleich**, dass solche Dinge in allen Fällen einander **substituirt** werden können, ohne dass man die Vertauschung bemerken müsste; begrifflich absolut identische Gegenstände, welche genau dieselbe Definition ergeben, müssten einander ersetzen können, so dass der Eine ohne Umstände an die Stelle des Anderen gesetzt werden könnte. Diese natürliche Erwartung aber wird in gewissen Fällen getäuscht: die rechte und die linke Hand, oder zwei sphärische Dreiecke, die einen Aequatorbogen zur gemeinschaftlichen Basis haben, mögen in allen Stücken absolut gleich sein; sie lassen sich trotz ihrer absolut identischen begrifflichen Definition nicht anschaulich zwischen denselben Grenzen einschliessen. Das “Paradoxon” besteht also darin, dass zwischen **begrifflich** absolut identischen Gebilden doch eine **anschauliche** Verschiedenheit bestehen kann, welche die Kongruenz verhindert. Dies ist wider die Erwartung, dies ist ein Rätsel.”(p.521)

²⁴¹ Kemp Smith (1991, 45).

the other hand as right.²⁴² The relevant difference in concepts and intuition, I maintain, concerns the contrast in our grasp of objects. According to Kant, one way of grasping objects is according to concepts and as the pure understanding would demand it. Now crucially such a conceptual grasp follows the demand that matter precedes form. And this contrasts to an intuitive grasp of objects, which follows the principle that form precedes matter.

In order to draw this connection between a conceptual grasp and the principle that matter precedes form, on the one hand, and an intuitive grasp and the principle that form precedes matter, on the other hand, recall our discussion from chapter three of Kant's argument that our representation of space is an intuition rather than a concept. We noted in this discussion that a concept is such that the parts are subordinated to the whole and the whole is contained in the parts, whereas an intuition is such that the parts are contained in the whole and the whole is greater than the parts. Moreover, we also noted that according to Kant in intuition there is one overall whole, i.e., space, of which every part is a part.

Now the contrast between the view that matter precedes form and the view that form precedes matter coincides with the contrast between a conceptual and an intuitive grasp insofar as the latter boils down to, i.e., a contrast between parts preceding the whole and the whole preceding the part. For, as we noted, if matter precedes form, then objects are assumed first as individual things that are possible independently of one another. In this case, if space is considered as an overall unity, then it would be a representation that is abstracted from the representations of these individual things, considered in their spatiality. And so the whole of space would have to be posterior to its parts. By contrast, if form precedes matter, then the overall unity precedes objects and makes them possible. And this means that space as a whole precedes and makes possible its parts. This latter point is the one that Kant goes on to spell out in his solution to the paradox.

5.3 Kant's Solution: Space is the Form of Sensibility

After stating the paradox, Kant provides the following as a solution:

“[4] These objects are surely not representations of things as they are in themselves, and as the pure understanding would cognize them, rather they are sensory intuitions, i.e., appearances, whose possibility rests on the relation of certain things, unknown in themselves, to something else, namely our sensibility. [5] Now, space is the form of outer intuition of this sensibility, and the inner determination of any space is possible only through the determination of the outer relation to the whole space of which the space is a part (the relation to outer sense); that is, the part is possible only through the whole, which never occurs with things in themselves as objects of the understanding alone, but does occur with mere appearances.”²⁴³

Kant first draws a contrast between things in themselves and appearances to then explain that incongruent counterparts are appearances, not things in themselves. While a thing in itself is an

²⁴² Bennett (1970, 175).

²⁴³ [*Prolog* 4:286, bracketed numbers are mine].

objects as the pure understanding would cognize them, with respect to the notion of appearance, he highlights that they are made possible in part by our sensibility.

In [5] Kant spells out the crucial difference that our sensibility makes. Our sensibility has a form, he notes, and this form is space. As to the significance of this point, Kant writes that on account of this form, “the inner determination of any space is possible only through the determination of the outer relation to the whole space of which the space is a part (the relation to outer sense)” which he goes on to simplify as the view that “the part is possible only through the whole”. This characteristic, he explains, contrasts these objects to things in themselves, because it “never occurs with things in themselves as objects of the understanding” that the part is possible only through the whole.

What, then, does Kant mean when he writes that ‘the inner determination of any space is possible only through the determination of the outer relation to the whole space of which the space is a part’? We noted that the inner determinations are those spatial determinations that speak to an independence of the object. They are thus the kinds of properties on account of which objects make for the matter that forms a world. Now with incongruent counterparts we see that there can be a difference between two objects that concerns their inner determinations and that thus their independence of one another, but which difference is grounded as space as a whole. Objects thus constitute the matter that forms a whole not independently of the way in which they organize into a whole. Rather, they constitute this matter in virtue of being “informed” by this whole. That is, objects are made possible in their independence from one another and such as to form an overall whole by space as a whole.

Now Kant claims that it never occurs with things in themselves that the part is possible through the whole. This brings us to the interpretational issue of how Kant is entitled to make a claim about things in themselves given that he argues in the *Critique* that we cannot have knowledge of such objects.

5.4 The Entitlement Problem

Recall that the problem concerns the status of what entitles Kant to make a claim about things in themselves, i.e., the pure understanding’s grasp of objects, given that he argues in the *Critique* that such a grasp is not possible for us. Now in light of the proposed relationship of §13 to Kant’s discussion of the concepts of matter and form in the *Amphiboly*, we can note that Kant’s claim is not based on the idea that we have cognition of a thing in itself. Rather it follows from the notion that the demand of the understanding that something be given in order to determine it applies to objects in an unconditional manner, and the conception of a thing in itself is a conception that would correspond to such an unconditioned grasp if such a grasp were possible for us. Furthermore, a notion of such a conception is theoretically important because it makes clear how Kant thinks about appearances and why he thinks that the objects of our cognition are mere appearances: they contrast in a fundamental way to what would be the object of our cognition according to the rationalists.

Conclusion

I want to conclude by summarizing some of my main points and the idea of the world-first view that I ascribe to Kant and that I see as motivated by incongruent counterparts. We have seen, in chapter one, that reflection on the difference between members of incongruent counterparts led Kant to the view that space in its unity figures in the possibility of objects. In particular, it is space in its unity that makes the difference possible. Since the difference is an inner difference, that is, a difference that concerns the objects in their possibility as composites – and thus as the material that makes for an overall whole – space in its unity is shown to have a certain kind of metaphysical significance. In the second chapter, I motivated Kant's interest in the unity of space with respect to a long-standing philosophical issue, namely, how it is possible for independently existing objects to form one world, the problem of unity, as I called it. We saw that, against the Leibnizian picture according to which objects form at most a contingent unity, Kant argues that there is a necessary unity among things. In chapter three, I explained how this problem illuminates Kant's investigation in his *Inaugural Dissertation* into the principle of the form of the world. I suggested that Kant's hylomorphic conception of the world grew out of a reconceptualization of the problem of unity. This in turn shed light on Kant's conception of space as the form of our sensibility. The notion of form is to denote the kind of unity that Kant wants to argue for in his earlier writings. Now with this conception of space as the form of our sensibility Kant is developing a view that combines his 1768 finding that space has metaphysical significance with his point that there is a necessary unity among things, though importantly this accounts for a unity among sensible things. But it is not until the first *Critique* that the view that space is the form of our sensibility is invoked as a solution to the problem of unity. In chapter four, I explained with respect to Kant's discussion of the concepts of matter and form in the *Amphiboly*, that he addressed the question of how it is possible for independently existing things to form one by arguing that form precedes matter and that it is the rationalist assumption that our understanding relates to objects in an unconditioned manner that leads the Leibnizians to a view according to which things form an overall whole only contingently. In the final chapter I explained with respect to Kant's discussion of incongruent counterparts in the *Prolegomena* that their philosophical significance lies in the way in which they support the view that form precedes matter, i.e., the view that the overall unity among the objects of our cognition precedes them and makes them possible as objects of our cognition. This view is what I have called a world-first view, especially in contrast to Leibniz's view, which has more of the character of a substances-first approach. The crucial difference here is that Leibniz starts with absolutely simple things and builds up from those to a whole. But this cannot explain how there are necessary connections and a necessary unity among things - which is crucial for Kant to account for the way in which things form one lawful system, a nature.

I also want to note – since it has been a source of puzzlement – that the changes in the conclusions that Kant draws from incongruent counterparts are not so much due to a change in the insight he takes from them, i.e., that their difference originates from space as an overall unity. Rather, it seems that he did not know how space in its unity can be said to make a difference to objects given that space considered as an overall unity is a somewhat ontologically suspicious thing. But the changes from thinking that space has a reality of its own, to thinking that our representation of space is a pure intuition, to his transcendental idealism seem to track a recognition of the significance of the unity of space, to thinking that space in its unity concerns our sensibility, and to finally thinking that space in its unity (and as the form of our sensibility) conditions our understanding.

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