

Kant's Revolution of the Mind

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Summary. Towards the end of the 18th century, Immanuel Kant brought about a revolution in Western philosophy that Kant likened to the Copernican revolution in astronomy. Kant began by considering certain traditional metaphysical questions like: Do space and time go on forever? Does the world consist of basic atoms that cannot be broken down into still simpler parts? Are human beings free, or are all of our actions causally determined? But what Kant discovered in examining these questions was an entirely non-traditional way of doing metaphysics that not only provided answers to these questions but also indicated when such questions were in principle unanswerable. This paper sketches the motivation behind Kant's revolution, its nature, and some of its implications for ethics and religious belief.

[1] Reason and the Enlightenment.

Back in the glory days of Reason, that is, during the European Enlightenment of the 18th century, the authority of Reason was the educated person's primary article of faith. This authority was based in part on the belief that Reason was *autonomous* (independent of the push and tug of the passions) and *universal* (found in all human beings, save for idiots, children, and other unfortunates). These qualities made Reason the preferred arbiter for all human affairs, and the source of our religion, our political system, and our morality.¹

Immanuel Kant, born in 1724 to a family of harness makers in the far northern European seaport of Königsberg, soon joined ranks with this Enlightenment ethos and eventually became one of its staunchest defenders during its twilight years. But Kant's major defense, paradoxically, came in the form of a **critique** of Reason, where he — true to his father's trade — reined in the sphere of Reason's pretended authority and rejected those claims for which Reason had no warrant. These unwarranted claims, primarily metaphysical in nature, had given Reason a bad name and by association were also sullyng its various other Enlightenment projects. Kant aimed to save Reason by restricting it to what he took to be its proper role, and this involved an overhaul of metaphysics that amounted to nothing less than a revolution in Western philosophy.

I'd like to do two things in this paper. The first is consider what led Kant to this great task of reforming philosophy, and the second is to explore briefly Kant's new system of philosophy, what he called 'transcendental idealism', focusing here on his patently unusual view that space exists only in our minds.

[2] What Roused the Sleeping Dogmatist?

Sometime during the 1770's, when Immanuel Kant was about 50 years old, something interrupted his "dogmatic slumbers" — something roused him, that is, out of the old way of doing metaphysics, causing him to seek out a new plan or method for pursuing metaphysical questions.²

Standard histories of Kant typically emphasize Kant's admission (in his *Prolegomena*, published in 1783) that it was a recollection of David Hume's account of causality that brought on this momentous awakening.³ Yet 15 years later, in a letter to Christian Garve (dated 29 September 1798), Kant wrote that it was the *antinomies* that "first aroused me from my dogmatic slumbers and drove me to the critique of reason itself, in

¹ See, for instance, Dilthey's characterization: "The main features of the Enlightenment were everywhere the same: the autonomy of reason, the solidarity of intellectual culture, confidence in its inevitable progress, and the aristocracy of the spirit" [William Dilthey, *Gesammelte Schriften* (Teubner, 1923-36), vol. 2, p. 131].

² By 'metaphysics' I mean the *a priori* science of being, and thus also of the sensible world. An *a priori* science is a science developed independently of experience, thus is wholly non-empirical. The opposite of this is a *posteriori* or empirical science.

³ *Prolegomena*, "Introduction" [Ak. 4: 260; Beck translation, p. 8]: "I openly confess my recollection of David Hume was the very thing which many years ago first interrupted my dogmatic slumber and gave my investigations in the field of speculative philosophy a quite new direction."

order to resolve the ostensible contradiction of reason with itself."⁴ (An **antinomy** is a pair of apparently sound arguments with contradictory conclusions. Thus an antinomy of reason involves reason contradicting itself by proving two incompatible conclusions.)⁵ Again in the *Prolegomena*, Kant notes that the antinomies serve...

...as a very powerful agent to rouse philosophy from its dogmatic slumber and to stimulate it to the arduous task of undertaking a critical examination of reason itself.⁶

He enjoins the reader here...

...to concern himself primarily with this antinomy of pure reason, because nature itself seems to have established it with a view to stagger reason in its daring pretensions and to force it to self-examination.⁷

I will follow Kant's advice here and begin our examination of his metaphysical views with a consideration of the antinomies of reason.

These antinomies, as discussed in the *Critique of Pure Reason* (published in 1781, revised in 1787), are often neglected in general overviews of Kant's epistemology because they belong to the somewhat less exciting "Dialectic" section of the *Critique*, in which Kant's project is primarily negative (exploring here the various ways that reason has gone wrong). And since the "Dialectic" shows up in the second half of the book, many students and commentators are often too exhausted by the time they wade up to its murky shores to examine its dense interior in much detail. More emphasis is given to the "Analytic" section in the first half of the *Critique*, where Kant offers his positive doctrines of space and time and the categories of the understanding. Yet Kant notes time and again that the negative discussion of metaphysics is vastly more important than any positive discussion, for it guards us from the dangerous pretensions of a misguided reason; and by humbling us, the antinomies open a door to Kant's positive doctrine, as well as providing a kick in the pants to send us tumbling through the door once we see the error of our ways.

[3] Metaphysics and the Interests of Reason.

Kant begins the "Preface" to the first edition of the *Critique of Pure Reason* with these words:

Human reason has this peculiar fate that in one species of its knowledge it is burdened by questions which, as prescribed by the very nature of reason itself, it is not able to ignore, but which, as transcending all its powers, it is also not able to answer.

The perplexity into which it thus falls is not due to any fault of its own. It begins with principles which it has no option save to employ in the course of experience.... Rising with their aid...to ever higher, ever more remote, conditions, it soon becomes aware that in this way...its work must always remain incomplete; and it therefore finds itself compelled to resort to principles which overstep all possible empirical employment, and which yet seem so unobjectionable that even ordinary consciousness readily accepts them. But by this procedure human reason precipitates itself into darkness and contradictions.... The battlefield of these endless controversies is called metaphysics. [A vii-viii]

Such a beginning suggests that Kant's primary concern in the *Critique of Pure Reason* is with our predilection

⁴ Ak. 12: 258; Zweig translation, p. 252. See also his letter to Herz (11 May 1791), and the *Critique of Judgment*, §57, "Second Remark" [Ak. 5: 344; Bernard translation, p. 190]: "Without such antinomies, reason could never decide upon accepting a principle narrowing so much the field of its speculation and could never bring itself to sacrifices by which so many otherwise brilliant hopes must disappear."

⁵ What Kant sometimes calls 'the antinomy of reason' (e.g., *Prolegomena*, §13 (3rd Remark), §52b) is simply this general phenomenon of the antinomies.

⁶ *Prolegomena*, §50 [Ak. 4: 338; Beck translation, p. 86].

⁷ *Ibid.*, §52b [Ak. 4: 341n; Beck translation, p. 88n].

for metaphysical speculation and the trouble that ensues. He touches here on three kinds of principles that will later come to play a large role in the *Critique*: the categories of the understanding (which we "have no option save to employ"), the ideals of reason, namely God, freedom, and immortality ("which seem so unobjectionable"), and certain claims of cosmology that result in antinomies ("darkness and contradictions"). But important for us here is his claim that this progression is purely *natural* (given the interests of reason), making the need for a critique of reason all the more pressing — for without it we remain mired in the muck and confusion of traditional metaphysics.

Later, in his introductory remarks to the second edition, Kant notes that ...

... metaphysics exists, if not as a science, yet still as a natural disposition. For human reason, without being moved merely by the idle desire for extent and variety of knowledge, proceeds impetuously, driven on by an inward need, to questions such as cannot be answered by any empirical employment of reason. [B21]

This need for metaphysics is as basic as our need for air: "that the human mind will ever give up metaphysical researches is as little to be expected as that we, to avoid inhaling impure air, should prefer to give up breathing altogether."⁸ The primary goal of reason is to find a ground or condition for everything, to leave hanging no metaphysical loose threads. Just as we feel a natural need to complete a tune or a sentence that has been interrupted halfway, in a similar fashion does reason feel a need to finish the series of conditioned events in the world with something that is itself unconditioned, thus bringing the series to a close. This need is embodied in the **principle of sufficient reason**, the principle that every event or being has a ground or reason that is adequate to account for that event's existence.⁹ Thus reason desires to find a sufficient ground for a series of conditions, and attempts to find this in something unconditioned. In this way are we driven to the antinomies by a natural interest of reason:

For what necessarily forces us to transcend the limits of experience and of all appearances is the *unconditioned* which reason, by necessity and by right, demands in things in themselves, as required to complete the series of conditions. [Yet]... we find that the unconditioned *cannot be thought without contradiction*.... [B xx]

Kant summarizes this problem in his discussion of the antinomies:

The whole antinomy of pure reason rests upon the dialectical argument: If the conditioned is given, the entire series of all its conditions is likewise given; objects of the senses are given as conditioned; therefore, etc. [*Critique of Pure Reason*, A497/B525]

⁸ *Prolegomena* [Ak. 4: 367; Beck translation, p. 116]. See also *Prolegomena* [Ak. 4: 362; Beck translation, pp. 110-11]. These sentiments are expressed throughout Kant's lectures on metaphysics, as well. For example, in the *Metaphysik Mrongovius* lectures from 1782/83: "Metaphysical investigations are as old as reason itself.... Human understanding is driven by natural needs to know where all of its ends lead" [Ak. 29: 757]; "We cannot disabuse the understanding of these questions" [Ak. 29: 765]; "Metaphysics arises from these two needs: God (for we can expect nothing from blind necessity, that it should make us happy insofar as we are worthy of that...) and another world" [Ak. 29: 775]; "Were there no hope for a future life then the vicious, who by any means and intrigue attempted to put himself in possession of earthly happiness, would be the happiest. Therefore one sees that metaphysics first arose from this practical interest of our reason" [Ak. 29: 937]. Or the *Metaphysik Vigilantius* lectures stemming from around 1794/95: "The attempt to investigate [God, freedom, and immortality] more closely was the coming about of metaphysics.... Only it is striking that human beings (and this is innate in everyone) found and still find an interest in it. For metaphysics does not contribute to the extension of empirical principles" [Ak. 29: 947]; "In short, no human being can be without metaphysics" [Ak. 29: 948].

⁹ As Leibniz formulated in his *Monadology*, §32: "There can be found no fact that is true or existent, or any true proposition, without there being a sufficient reason for its being so and not otherwise, although we cannot know these reasons in most cases." See also his *New Essays on Human Understanding*, III, iii, §6.

[4] Philosophy on its Deathbed.

Reason gets itself into trouble by trying to answer certain basic metaphysical questions to which it is drawn by its very nature, but which end in self-contradiction. The trouble arises when this innate need, as embodied by the principle of sufficient reason, is combined with a certain false but widespread assumption that Kant calls **transcendental realism**. This is the assumption that the tables and chairs and elbows that we experience are objects that exist independently of our minds, and which nevertheless we can experience or know directly. This assumption, Kant will try to show, leads to self-contradiction.

Three responses to this trouble are available to us: either we lapse into **skepticism** and believe nothing, or we remain **dogmatic** and obstinately maintain one of the arguments by ignoring its competitor, or we become **critical** (the Kantian response), which involves seeing the two arguments as harboring a common error. Kant's "critical" response, what he calls **transcendental idealism**, is that while we *can* experience or know tables and chairs and elbows directly, these objects are *not* independent of our minds, and the mind-independent reality underlying the chairs and tables and elbows of the world is wholly unknowable by us. Kant viewed the other two responses — skepticism and dogmatism — as "the death of sound philosophy, although the former might perhaps be entitled the *euthanasia* of pure reason" [A407/B434]. We will now follow Kant as he checks the pulse of this patient, and then explore the remedy he prescribes.

Kant discusses four antinomies in the *Critique of Pure Reason*, and these are generated by the following four questions:¹⁰ (1) Does the world go on forever in space and time, or does it have a beginning and/or end? (2) Can the parts of the world be forever divided, or does one eventually arrive at simple parts which cannot be further divided? (3) Is every event in the world causally determined by an earlier event, so that nothing we do is free; or is there human freedom? And finally, (4) Is everything in the world contingent, or is there a necessary being that is the cause of the world? These are not insignificant questions for us:

That the world has a beginning, that my thinking self is of a simple and therefore indestructible nature, that it is free in its voluntary actions and raised above the compulsion of nature, and finally that all order in the things constituting the world is due to a primordial being from which everything derives its unity and purposive connection — these are so many foundation stones of morals and religion. [A466/B494]

These antinomies concern various features of the world, namely, its age and size, its composite nature, the causal chains found within it, and the nature of its existence. The world that we are talking about here is the so-called **sensible world**,¹¹ the world of the senses, the world that we see and touch, or at least *can in principle* see and touch and otherwise experience sensibly. So, for instance, distant galaxies and the far side of the moon and the center of the earth are all part of this sensible world, because although we may not be able to sense some of these now, it is easy to imagine scenarios where, disregarding any problems of physical possibility, we *could* sense them (e.g., by building a bigger telescope, by travelling to the moon, by digging a deep hole into the earth).

First Antinomy. Each antinomy involves two arguments whose conclusions contradict each other. The first antinomy involves an argument that the world is spatio-temporally finite (that is, that the world has a beginning in time and has a determinate size), and a counter-argument that the world is spatio-temporally infinite. Starkly put, the argument for each position (and this is true of all four antinomies) is that the *other* position is incorrect, and since one of the positions must be correct, *this* position is correct.

The first argument holds that the world must be spatio-temporally *finite*, because we could never sense or experience an infinite world. The problem isn't that we do not *presently* sense an infinite world (after all, we

¹⁰ See Kant's own list of these questions at A463/B491.

¹¹ See *Critique of Pure Reason*: "The mathematical sum-total [*Ganze*] of all appearances and the totality of their synthesis, alike in the great and the small, i.e., in the advance alike through composition and through division" [A418/B446]; "The sensible world, as the whole of all appearances..." [A452/B480]; "the object of all possible experience" [A605/B633].

aren't presently sensing Cleveland, OH, yet there is little doubt that it exists), but rather that *in principle* we can never sense an infinite world, for by definition, we could never complete the task. The world can never appear to us as infinite; therefore, it must be finite. That's a pretty rough sketch of how the first argument goes.

The second argument is that the world must be spatio-temporally *infinite*, because we can't imagine ever bumping up against the boundary or edge of the world. This is the typical thought-experiment that probably every child puzzles over: if we kept travelling through space in one direction, would we ever come to an end where the universe simply stopped? The general feeling is that we would never come to an end, but would instead just keep going on. After all, if we came to some sort of boundary, like a brick wall, we could imagine breaking through the wall and continuing our journey. In short, it seems inconceivable that we could ever experience the edge of the universe, or its beginning or end.¹²

These two arguments put together constitute the first antinomy of reason, and suggest to us that something has gone wrong: either reason is deficient when it comes to questions like these, or we are laboring under some false assumption. Kant believed the latter to be the case: these two arguments, according to Kant, share a false premise, namely, that the world must be either finite or infinite in its spatio-temporal magnitude; furthermore, this premise rests on a still more basic and equally mistaken assumption, namely, that "the world as it is in itself" is identical to "the world as we experience it" (the hypothesis of transcendental realism). While the world as it is in itself might need to be either finite or infinite, the world as we experience it is neither finite nor infinite, but rather *indefinite*: it simply keeps going on and on with the advance of our experience.

Another way of putting this same point is that the transcendental realism underlying these two arguments confuses two different kinds of conditions: those conditions necessary for an object to be able to exist (what we will call **ontological conditions**), and those conditions necessary for us to be able to experience an object (what we will call **epistemic conditions**). Transcendental realism assumes that these conditions are the same and that we can experience the world exactly as it is in itself, while Kant believed that the conditions are quite different, and that experiencing the world as it is in itself is impossible, except perhaps for God. According to Kant, our experience of the world is always affected by the structure of our minds and sensing apparatus, so that we can never experience things as they are in themselves. To use Kantian jargon, these two arguments illustrate the failure to distinguish the **noumenal realm** (of things as they are in themselves) from the **phenomenal realm** (of things as we experience them).¹³ This, in a nutshell, was Kant's revolution.

Second Antinomy. The second antinomy closely resembles the first. Here the argument for there being *simple parts* in the world is that we cannot experience an infinite division (for the reason that it would take an infinitely long time to do so). Similarly, the argument for the *infinite divisibility* of parts in the world is that

¹² W. H. Walsh offers an interesting complementary reading to this antinomy. Building on Al-Azm's research showing that the antinomies are based on the Leibniz-Clarke correspondence (published in 1768), where the Newtonian Clarke is represented by the theses (the first argument of each pair) and Leibniz by the antitheses (the second argument), Walsh argues that the disagreement really lies in an ambiguity inherent in the principle of sufficient reason (to which both parties make appeal), and that it is this principle, in combination with the assumption of transcendental realism, that generates the antinomies.

Leibniz argued that if a finite world were set into absolute space and time, God would have no sufficient reason to begin the world at one moment rather than another, or at one point of space rather than another. Clarke, on the other hand, replied that the sufficient reason was God's own will. This underlies the contradiction in the principle: namely, it demands an end to a series of reasons in some self-sufficient reason, such as God, but then it can compel us to question the sufficiency of this, as well. Cf. Walsh, pp. 203-5. This same approach can be taken with the other three antinomies, where a series of conditions — either of divisions (2), of causes (3), or of contingent beings (4) — is brought to an end, but then forced back open given this same desire for a sufficient reason.

¹³ Earlier, Kant attributed these antinomies to our failure to recognize that separate cognitive faculties are at work, viz. sensibility and the understanding; cf. Kant's 1770 Dissertation, *On the Form and Principles of the Sensible and Intelligible Worlds*, §§2-7 [Kerferd translation, pp. 50-58].

we cannot experience simple parts (for the reason that any part we might claim to be simple will occupy some part of space, and since a space can always be divided, then anything in space will be likewise divisible). The error here is again that the phenomenal world is being treated as though it were the noumenal world. The correct position is to view the parts in the world as *indefinitely* divisible.

The third and fourth antinomies differ from the first two in that the error underlying them is *not* that the phenomenal world is treated as though it were the noumenal, but rather that the phenomenal and noumenal realms are not recognized as distinct, and that the conclusions of *both* arguments might be true so long as they are limited to their respective realms.

Third Antinomy. The third antinomy concerns the question of human freedom: one argument claims that such freedom is necessary while the other argues that it is impossible. Without entering into either of these arguments as Kant presents them,¹⁴ we can easily see the conflict that arises here. On the one hand, we have exceptionally good reasons to think that we are free: free choice is constantly taken for granted in our daily affairs, in our ascriptions of moral responsibility, in our feelings of pride or regret over past actions, in our attempts at changing the future actions of others, and in our deliberation over our own. We *feel* free, and while such feelings may be misguided, they are persistent and nearly impossible to resist.

On the other hand, the world of natural science tells us that all events in the world are determined by prior events which cause them;¹⁵ this is what (at least in philosophy) is called 'the principle of universal causation'. Since human beings are part of this natural world, all of our actions are likewise caused. While events in my brain might be the cause (or a contributing cause) of certain overt actions of my body, these brain events are themselves caused by earlier events, whose causal chains begin outside my body, and indeed ultimately even before my birth. In short, there is no place for free choice to enter in, as free choice involves the ability to begin a chain of events spontaneously, without any prior cause.

This antinomy arises, however, only if we assume that the phenomenal world, the world as it appears to us, is identical to the noumenal world, the world as it is in itself. If instead we view them as separate realms, then the universal causality of the phenomenal realm is compatible with free choices occurring in the noumenal realm. While Kant does not claim that we *are* free in this latter realm, he does maintain the *possibility* of such freedom.¹⁶

Fourth Antinomy. The fourth antinomy, finally, concerns the question of whether there is a necessary being that caused the world. On the one hand, reason demands that there exists some necessary being to act as an ultimate or mediate cause for the contingent beings in the world, and yet on the other hand, the world can have nothing *but* contingent beings (since it is in constant flux), making the existence of a necessary being impossible. This impasse is again avoided if we allow that, while all beings in the phenomenal world are contingent, there may yet be a necessary being in the noumenal world which is the cause¹⁷ of the phenomenal world's existence. Again, Kant does not claim that a necessary being *does* in fact exist, but merely that the existence of such a being (in the noumenal realm) is possible.

¹⁴ The arguments as presented by Kant concern the existence of a self-caused cause (something that is its own cause, a property traditionally ascribed to God). In this form, the arguments resemble those of the other three antinomies by involving a series of conditions in need of completion. Kant then makes the additional inference that, if *some* self-caused cause is possible, then it is possible that *we also* enjoy this ability with some of our actions, and thus are free.

¹⁵ Quantum mechanics offers up an exception to this, but whether this exception is relevant to the argument cannot be entered into here.

¹⁶ This Kantian solution to the problem of free will is the only true "compatibilist" solution (between the libertarian and determinist solutions) that I have come across. Other compatibilist theories fail to take seriously the spontaneity of free actions demanded by the libertarian.

¹⁷ Here 'cause' is meant in a non-phenomenal sense (i.e., it is *not* a category of the understanding, as discussed below). This "noumenal causality" is intended as a general grounding relation which is thought as a mere possibility.

Thus we have here four traditional problems of metaphysics, as well as two possible philosophical positions from which to attempt their solution. The position that views the phenomenal world as identical to the noumenal world is what Kant calls **transcendental realism**, whereas he calls his own position, that views the phenomenal world as separate from the noumenal world, **transcendental idealism**.¹⁸ From the transcendental realist position, these problems result in contradictory proofs of equal soundness (viz. antinomies), while from the transcendental idealist position they are handily resolved. If any one of these antinomies succeed, then Kant's point is made. Kant, of course, believed that all the arguments are successful, so long as the offending premise is allowed.

[5] Saving the Patient: Transcendental Idealism.

The role that these problems and their antinomies played for Kant, and the one which I am giving them here, is to act as a motivation for seeing that something is quite amiss with the way metaphysics has been carried out prior to Kant's critical turn, and that certain problems quickly vanish once we re-orient ourselves to Kant's new standpoint of transcendental idealism. Transcendental realism and transcendental idealism divide the philosophical world into two camps:¹⁹ in the realist camp are grouped together all those metaphysicians who assumed that appearance is the real; thus rationalists like Descartes and Leibniz belong here, as well as empiricists like Locke and Hume, and even Berkeley, who assumed that the ideas in our mind are the thing itself (as they issue from the mind of God). Kant's great contribution to metaphysics was the development of transcendental idealism as a new standpoint for doing metaphysics. Historically for Kant, and for us today, the antinomies offer an intuitive push towards this Kantian revolution in metaphysics.

Kant described the need for this shift in the second edition "Preface" of the *Critique of Pure Reason*, drawing an analogy with the Copernican revolution:

We must therefore make trial whether we may not have more success in the tasks of metaphysics, if we suppose that objects must conform to our knowledge. This would agree better with what is desired, namely, that it should be possible to have knowledge of objects *a priori*, determining something in regard to them prior to their being given. We should then be proceeding precisely on the lines of Copernicus' primary hypothesis. Failing of satisfactory progress in explaining the movements of the heavenly bodies on the supposition that they all revolved round the spectator, he tried whether he might not have better success if he made the spectator to revolve and the stars to remain at rest. [B xvi]

Kant then suggests we try the same with human knowledge, with the benefit that we now make possible our possession of *a priori* knowledge of the sensible world:

A similar experiment can be tried in metaphysics, as regards the *intuition* of objects. If intuition must conform to the constitution of the objects, I do not see how we could know anything of the latter *a priori*; but if the object (as object of the senses) must conform to the constitution of our faculty of intuition, I have no difficulty in conceiving such a possibility. [...]

If then, on the supposition that our empirical knowledge conforms to objects as things in themselves, we find that the unconditioned *cannot be thought without contradiction*, and that when, on the other hand, we suppose that our representation of things, as they are given to us, does not conform to these things as they are in themselves, but that these objects, as appearances, conform to our mode of representation, *the contradiction vanishes*; and if,

¹⁸ Kant also called this position 'formal idealism' (as opposed to 'material idealism'), or more generally, 'critical philosophy' (as opposed to both dogmatic and skeptical philosophy).

¹⁹ Allison notes that transcendental realists tend to hold what he calls a "theocentric model of knowledge" (which views human knowledge as an imperfect version of God's perfect knowledge of things as they are in themselves), while Kant's transcendental idealism he calls an "anthropocentric model of knowledge" (which views the human mind as the source of necessary truths of the sensible world); cf. Allison, pp. 19-30.

therefore, we thus find that the unconditioned is not to be met with in things, so far as we know them, that is, so far as they are given to us, but only so far as we do not know them, that is, so far as they are things in themselves, we are justified in concluding that what we at first assumed for the purposes of the experiment is now definitely confirmed. [B xvi-xvii, xx-xxi]

It is time now to consider some specifics of Kant's transcendental idealism. We noted that the key difference between this and transcendental realism is that the former distinguishes epistemic from ontological conditions²⁰ while the latter does not. What exactly are these epistemic conditions? First, it is important to see that an epistemic condition is neither a logical nor a psychological condition, but instead something distinct from them and uniquely Kantian.²¹ *Logical conditions* serve as the basis of formal logic, and are simply rules for consistent thinking, like the principle of contradiction; the difference between logical and epistemic conditions is, for instance, the difference that Kant draws between general and transcendental logic.²² *Psychological conditions*, on the other hand, are the conditions sufficient or necessary for some belief, whether they be mere biographical facts about some individual's brain and beliefs, or about the generation of certain types of beliefs given certain types of psychological or physiological conditions. Hume's explanation of causation by way of habit or custom is an example of giving a merely psychological condition for causation.

Epistemic conditions, on the other hand, are conditions necessary for the representation of an object (or an objective state of affairs), i.e., for us to have knowledge or experience of the sensible world (as opposed to a mere feeling or desire or dream). Kant maintained there were two distinct groups of epistemic conditions for human beings, namely, sensible and intellectual conditions.²³ These sensible conditions reflect the special way that we passively receive (or to use the Kantian term: **intuit**) the given of the world, while the intellectual conditions reflect the structure of our understanding as we process this intuited data into what becomes our "experience of the sensible world". The sensible conditions, which Kant calls **forms of intuition**, are space and time: everything that we experience as "outside me"²⁴ must be in space, while everything we experience, outside or in, must be in time. Space and time are called forms of intuition in that they are the form that the material given to us assumes once we intuit or receive it.

The intellectual conditions involve a more complicated story which we will only sketch and put aside. These conditions are called the **categories** or "pure concepts" of the understanding, and are twelve in number,

²⁰ Ontological conditions, which we defined as the conditions necessary for an object to exist, must remain a mystery to the transcendental idealist, since on this account knowledge of objects as they are in themselves remains closed to us. Transcendental realists, on the other hand, believe such knowledge to be readily available, and so examples of would-be conditions can be found there. Newton, for instance, believed that space and time are ontological conditions, that is, things in themselves must exist in this Newtonian absolute space and time, where space and time are two vast "non-things" underlying all existing real things.

²¹ Much of this discussion comes from Allison, *Kant's Transcendental Idealism*, pp. 10 seq.

²² *Critique of Pure Reason* [A52-57/B76-82].

²³ Viewing knowledge as the product of these two sources was also an important innovation of Kant's; indeed, L. W. Beck considered this Kant's most important innovation ("Kant's Strategy" in *Journal of the History of Philosophy*, 28: 224-36, 1967). Prior to Kant, philosophers had tended to either sensualize concepts (by basing them all on experience) or intellectualize sensation (by viewing sensations merely as indistinct concepts). In terms of the faculty psychology of the time, this amounted to breaking free of the dominant one-faculty view of the Wolffians, who held that the power of representation was the sole cognitive faculty. (See Kant's criticism of this view at *Critique of Pure Reason* [A43/B60 seq].)

Kant's doctrine of a bipartite cognition fits nicely with his transcendental idealism. For if we cannot cognize the world immediately, but rather only by way of our sensations, then it is clear that we cannot know the world as it is in itself. Cf. note 13, above.

²⁴ This is not meant *spatially* (which would make the definition circular), but rather *logically* as that which is "independent of me" or "distinct from me".

falling into four groups of three. The first group concerns the extensive magnitude of an object (i.e., that it have some size and some duration), the second group concerns the intensive magnitude of an object (i.e., that it have some degree of intensity with which it appears to us), the third group concerns the relationships that must occur among the objects of appearance, namely, (1) there must be a permanent object that undergoes alterations, (2) these alterations must be part of a causal chain, and thus related serially with other alterations, and (3) these permanent objects must co-exist in a single space. Finally, the last group concerns the modality of the object as being either possible, actual, or necessary with respect to experience.

We will not pause here to consider whether this list of categories is correct or complete, or how Kant happened to derive it. Suffice it to say that he believed the list to be complete because he based it on the logic of his day, which he in turn thought to be complete. What is important to us here are not the peculiarities of this list, but rather the idea that there is any list at all, that is, that there are *some* concepts, whatever they may be, which serve as epistemic conditions for us and thus are necessarily true of every item of experience.

[6] Space and Time as Transcendentally Ideal.

Kant believed that space and time are transcendentally ideal, that is, that space and time are merely the ways in which we intuit objects, and are not themselves real things or features of real things (and similarly are not ontological conditions). This claim about space and time is what people commonly find most unsettling, and once this claim is accepted, the intellectual epistemic conditions follow fairly easily (although there may be squabbles over individual ones).²⁵

Kant argues for the transcendental ideality of space and time at the beginning of the *Critique of Pure Reason* in the "Aesthetic" section which is devoted to this topic. He gives separate sets of arguments for space and time, but since these are closely parallel, it is common to consider only those for space, which is the course I take here.

The argument for transcendental ideality involves first proving that space is a *form of intuition* (i.e., a way in which we intuit objects). To prove this, we must show that space is an *a priori* representation (thus is not derived from experience) and that it is an intuition (an individual thing given to us, rather than a general idea or concept that we either have innately or that we abstract from experience). Once Kant has argued both of these points, the question arises how an *a priori* intuition is possible, that is, how an intuition can be given to us which, because it is *a priori*, cannot come from any intuited object. Kant finds only one answer to this: the intuition must be a *form of intuition*, and thus is given to our understanding by our own faculty of sensibility. Taking the final step to transcendental ideality requires showing that space can be neither a real thing nor a property of a real thing. While it is unclear that Kant has any successful arguments for *this*, I would maintain that his position remains sound insofar as the status of any "real" space becomes here an irrelevant and moot point. More on this below; but first, to the arguments that space is an *a priori* intuition.

Kant offers two arguments that space is an *a priori* representation.²⁶ First, it is from experience that we learn about particular spatial relationships, for example, that my nose is between my eyes and my mouth; but if I want to know whether my nose is distinct²⁷ from my mouth, or that any of these are distinct from my

²⁵ On the centrality of space and time for Kant, see his discussion of these concepts in the *Metaphysik Mrongovius* [Ak. 29: 829]: "We come now to the important concepts [viz., space and time] that are of the kind that, once we have been able to unfold their nature, they alter the entire plan of metaphysics and banish all contradictions that have discredited metaphysics."

²⁶ *Critique of Pure Reason* [A23-24/B38-39]; see also the presentation of these two arguments in the *Metaphysik Mrongovius* [Ak. 29: 830]. For an account of space as empirical, see Locke's *An Essay Concerning Human Understanding* [Bk. II, Ch. 13, §2]: "...we get the idea of space, both by our sight and touch; which, I think, is so evident..."

²⁷ Kant uses the terms '*außer mich*' (= outside me) and '*außer und neben*' (= outside and next to), but he clearly cannot intend a spatial "outside of", as that would make his claim tautological (an idea of space is

mind then I do not turn to experience for help. Rather, I need the representation of space in order to recognize an object as distinct from me and from other objects, and I do this by representing them in diverse spaces. Now suppose that I am attempting to learn about the notion of space empirically by examining various objects in experience. I cannot recognize these objects as distinct from me or each other unless I am already in possession of the notion of space, such that I might represent them in diverse spaces. The very notion of "turning to experience" to learn what space is presupposes that I already know what it is.

Second, we can easily imagine a space without objects in it, although we cannot imagine a world of such objects devoid of space. Our inability to form an idea of a spaceless world suggests that our idea of space must not have been derived from a world of objects (where presumably, upon first intuiting, we would experience *only* objects, and from them then acquire the idea of space).

Kant next offers two arguments that space is an **intuition** (i.e., an individual representation that is given to us, for example, a particular triangle either imagined or drawn on a piece of paper) and not a **concept** (i.e., a general representation of the understanding, for example, triangularity).²⁸ First, space must be an intuition because space, like intuitions and unlike concepts, is singular. We can imagine only one space, with all other spaces being mere parts of this one space. The representation of the concept DOG might be given by any number of dogs (which exist independently of the concept), but the representation of space can be given only by parts of this one space. This leads us to the second half of the argument, which also contains an additional argument for the apriority of space, namely that these parts of space are *in* the one space, and that this one space is therefore prior to its parts. We can *empirically* intuit only parts of space, and so our intuition of the one space must be *a priori*. With concepts, on the other hand, its parts are prior to the concept, for example, the concept DOG might be thought of as composed of a variety of properties, including: MAMALLIAN, NON-RUMINATING, FOUR-LEGGED, and so on. While these parts of the concept DOG can exist prior to the concept, the parts of space cannot. Space is thus seen as a true unity, in that the one space is prior to its parts.

In the final argument, we note that space has its many representations *within* itself, while a concept has its representations merely *under* it. An individual dog is not a part of the concept DOG, while a spatial region *is* a part of the one space (this is the difference between a predicate relation and a part/whole relation).

Assuming now that Kant has successfully shown space (and similarly, time) to be an *a priori* intuition, it follows that space and time must be forms of intuition, that is, sensible conditions for all of our empirical knowledge; for, as noted above, in no other way can we explain the possibility of an *a priori* intuition. But it does not yet follow that space and time are transcendently ideal, for this requires showing that space and time are neither real things nor features of real things, and it is presumably possible that real things just happen to be spatio-temporal, even though space and time are also forms of human intuition.²⁹

obviously required for the recognition of spatial relations). What must instead be intended is 'distinct from the self' and 'numerically distinct'.

²⁸ *Critique of Pure Reason* [A24-25/B38-40]; see also the arguments as presented in the *Metaphysik Mrongovius* [Ak. 29: 831]. The distinction between intuitions and concepts is nicely made in Kant's dissertation *On the Form and Principles of the Sensible and Intelligible World*, §22.

²⁹ Following these "metaphysical expositions," wherein space is shown to be an *a priori* intuition, Kant offers a "transcendental exposition of space" (added in the second edition) where he discusses Euclidean geometry as being a science built upon synthetic *a priori* principles, and notes that this is possible only if space is a form of intuition. Not a few commentators have taken this to be Kant's proof for the transcendental ideality of space; and since this "proof" assumes the truth of Euclidean geometry, the argument fails (given the development of, and empirical successes with, non-Euclidean geometries). But I have been arguing above that the transcendental ideality of space is a fairly direct consequence of it being an *a priori* intuition, so that the discussion of geometry (which is again summarized at A46-49/B64-66) becomes gratuitous. Basing the *a priori* intuitive nature of space on mathematics is at the heart of the corresponding discussion in the *Prolegomena* (1st part: "How is Pure Mathematics Possible?").

Kant also offers two other arguments for the transcendental ideality of space and time, which are today about as successful as an appeal to Euclidean geometry. First, at B66-69, he argues from the unreality of

I view this last step as unproblematic, however, for while space and time might still be ontological conditions (apart from being epistemic conditions), we could never *know* this to be true, and we might well ask what this doubling-up of space and time could accomplish. The space of sensibility is the space that sensible objects occupy. What sort of "space" might this noumenal space be, and what benefit could possibly arise from assuming its existence? We have seen in the antinomies that its assumption leads to trouble, and we have yet to see any benefits.

[7] Some Implications of Kant's Revolution...

... *for our daily interaction with the physical world.* It is still safe to get out of bed in the morning, and we can approach our breakfast with that same eagerness and gusto as before we found it to be mere appearance. Phenomenal oatmeal turns out to be just as nourishing, filling, and wholesome as what we once mistakenly took to be oatmeal-in-itself.

Nothing has changed here for us. The world of sensible objects remains, as before, a world of physical objects with which we stand in immediate interaction. When I know that a table weighs 20 pounds or measures 30 inches across or has a square top that is painted white, these are things I know about the sensible table; and although the table might not always *appear* white or square or 30 inches across (for the lighting might be unusual, or I might be viewing it at an angle, or my sense of distance might be skewed), still that's what the table *is*, and it's this way for all properly functioning human beings.

We are, of course, speaking only of the phenomenal table. What might underlie all of this *noumenally* is a complete unknown. There might be a noumenal table underlying the phenomenal table, or there might be a single noumenal object underlying the entire phenomenal world. And there is similarly something about the noumenal object underlying the phenomenal table such that the phenomenal table is square instead of round, and objectively white instead of, say, objectively red, but there is no reason to assume that the noumenal object itself is square, white, etc. Indeed, it makes little sense to apply predicates that we normally apply to things *as they appear to us* to the things *as they are in themselves*.

... *for the natural scientist.* Like Descartes, Kant hoped to provide a solid foundation upon which to build the natural sciences; for Kant, this was to be a foundation of synthetic *a priori* principles, which he thought was required for any field of inquiry to count as a science. Kant was never an experimentalist, but his early works were uniformly on the natural sciences, and he avidly followed the experimental research of others.

Kant provided a small set of basic principles for science in the *Critique of Pure Reason*, and in the *Metaphysical Foundations of Natural Science* (published five years later, in 1786), he derived a further set of principles from these by applying them to the empirical concept of motion. The theory of matter which resulted was at odds with the atomism prevalent from Galileo to Newton, which Kant believed to be theoretically bankrupt. In its place he posited a matter which was a *continuous quantity* (as opposed to discrete atoms or particles) and *dynamic*, composed of the basic forces of attraction and repulsion (as opposed to the inert stuff of atoms or Cartesian matter).³⁰ In the terms of his transcendental idealism, this matter is an appearance in space, and in investigating the material world, we are investigating things as they appear to us, and not things as they are in themselves.

Kant's influence was particularly felt among the life-scientists, who were reading the second half of his third critique, the *Critique of Judgment* (published in 1790), which contains important discussions of teleological and mechanical modes of explanation. This debate, at least in the philosophy of science, is still

relations (an old Leibnizian prejudice, long since undermined by the development of a relational logic by Frege and Russell), and second, at B71, from the alleged spatio-temporality of God that results on a transcendental realist view of space and time.

³⁰ For an excellent and brief introduction to this, see James Ellington's "Introduction" to his translation of Kant's *Metaphysical Foundations of Natural Science*, pp. v-xxix.

alive and well.

In perceptual psychology, Kant's theory of spatial perception is still an active contender. While J. J. Gibson and his followers favor environmental cues over innate structures in spatial perception, there are a number of theorists still working with innatist models, such as David Marr at MIT (cf. his *Vision*, 1978).³¹

... *for our intellectual lives*. To the extent that one shares the Enlightenment's view of reason as providing a means for ordering society and the sciences, then Kant's transcendental idealism is most helpful by avoiding the self-contradictions in metaphysical pursuits which so embarrassed reason, and which called into question its competence in other affairs as well.

But not everyone has viewed Kant's revolution so favorably as this: there have always been those who felt somewhat victimized by Kant's project, as epitomized by the case of Heinrich von Kleist, a German dramatist and poet who was four years old when the dead weight of Kant's first *Critique* fell from the press. Kleist's study of Kant as a young man precipitated a spiritual crisis, for he viewed Kant's "revolution" as relativizing knowledge, and thus trivializing it by precluding all knowledge of things as they are in themselves, and thus rendering science and philosophy a pointless task. This reaction to Kant is misguided, but it was nonetheless rather widespread (note merely the rise of German Idealism out of Kant's grave).

... *for our moral and religious lives*. This brings us full-circle back to the beginning of our discussion of those practical interests of reason that had spurred us into metaphysics's lingering embrace. Morality and religion are clearly where Kant saw the real benefit of his revolution: by foreclosing the non-sensible realm from objective scrutiny, it both deflated the bags of otherwise windy dogmatists, and even more importantly defanged the skeptic and atheist, whose ravagings of the moral and religious landscape had alarmed Kant and many of his contemporaries. As Kant wrote in the "Preface" to the second edition of the *Critique*:

I have therefore found it necessary to deny *knowledge*, in order to make room for *faith*. The dogmatism of metaphysics, that is, the preconception that it is possible to make headway in metaphysics without a previous criticism of pure reason, is the source of all that unbelief, always very dogmatic, which wars against morality. [B xxx]

Reason begat metaphysics primarily out of an interest in the moral life, but reason needed to be saved from itself, for its unbridled pursuits would have destroyed this very goal.

This concludes our brief discussion of Kant's revolution of the mind. Given the introductory nature of this paper, the purpose of which was merely to introduce the basic orientation of Kant's transcendental idealism, many important features have been, for the sake of brevity, left aside. This includes topics that some will consider central to any understanding of Kant's project, such as the problem of synthetic *a priori* knowledge (that is, knowledge about the world which yet can be known independently of the world). Similarly, I have not discussed Kant's famous (or infamous) analytic/synthetic distinction, nor Kant's philosophy of mathematics, nor the centrality of judging as a unifying operation of the mind. Kant's famous and profoundly obscure "transcendental deduction" of the categories also went without mention, since the arguments regarding space and time are somewhat more basic to his system, as well as more accessible. In short, we have not covered the highlights of Kant's revolutionary philosophy so much as its general orientation; but this, when it comes to revolutions, generally makes for a more valuable introduction.

³¹ For more information on such research, see Patricia Kitcher, "Discovering the Forms of Intuition" in *The Philosophical Review*, 96: 241-47 (1987).

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