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Rationalism Restrained: Kant and the Metaphysics of Ground

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by

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The Dissertation of Joseph Thomas Stratmann is approved, and it is acceptable in quality and form for publication on microfilm and electronically.

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DEDICATION

Meiner Familie

Die Ros' ist ohn' Warum. Sie blühet, weil sie blühet,
Sie acht't nicht ihrer selbst, fragt nicht, ob man sie siehet.

Angelus Silesius

EPIGRAPH

[…] reason has insight only into what it itself produces according to its own design; it must take the lead with principles for its judgments according to constant laws and compel nature to answer its questions, rather than letting nature guide its movements by keeping reason, as it were, in leading-strings; for otherwise accidental observations, made according to no previously designed plan, can never connect up into a necessary law, which is yet what reason seeks and requires. Reason, in order to be taught by nature, must approach nature with its principles in one hand, according to which alone the agreement among appearances can count as laws, and, in the other hand, the experiments thought out in accordance with these principles yet in order to be instructed by nature not like a pupil, who has recited to him whatever the teacher wants to say, but like an appointed judge who compels witnesses to answer the questions he puts to them.

Immanuel Kant

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ABSTRACT OF THE DISSERTATION

Rationalism Restrained: Kant and the Metaphysics of Ground

by

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Human reason demands not merely cognition *that*, but cognition *why*—it demands to cognize things *from their grounds*. In both rationalism's heyday in the seventeenth century and its contemporary renaissance, rationalist philosophers (like Spinoza and Leibniz) purported to satisfy reason's demand through the principle of sufficient reason and other metaphysical principles. Yet the eighteenth-century German rationalist tradition faces a foundational crisis concerning the very intelligibility of grounds: under what conditions can reason cognize something from its ground? I first argue that (i) this question tears apart Leibniz's German rationalist successors—including Christian Wolff and Christian Crusius—and (ii) the early Kant's discernment of inadequacies in their

answers helps to awaken him from dogmatic slumber. And against the longstanding trend of taking the *Critique of Pure Reason*'s account of experience as its cornerstone (by P.F. Strawson and many others), I then propose that its titular project revolves around saving the possibility of rational cognition. On this basis, I offer novel reconstructions of Kant's radical arguments for idealism and the restriction of rational cognition to the bounds of sense. In short: to be saved, rational cognition must be *restrained*.

Introduction

The title of a book typically indicates its main topic. The title of Kant's magnum opus, the *Critique of Pure Reason*, indicates that its main topic is a critique of pure reason. Not space or time. Not idealism. Not even experience. These topics are ultimately scaffolding, the means to the end. The end is for reason "to institute a court of justice, by which reason may secure its rightful claims while dismissing all its groundless pretensions, and this not by mere decrees but according to its own eternal and unchangeable laws; and this court is none other than the critique of pure reason itself." (Axi-xii).[1] Reason is called upon to assess the boundaries of its own capacity for rational cognition [*Vernunfterkenntnis*]. The critique's core *positive* end is accordingly to assess what lies within reason's cognitive powers ("by which reason may secure its rightful claims"). Its core *negative* end is to assess what lies beyond reason's cognitive powers ("dismissing all its groundless pretensions"). The pressing need for this critique stems from the prevailing stalemate in metaphysics, "the battlefield of […] endless controversies." (Aviii). A critique of pure reason, Kant ultimately concludes, restores peace by ruling that although (i) rational cognition of various sorts is possible within the boundaries of possible experience, (ii) rational cognition is impossible beyond these boundaries (Bxix). We might call this twofold conclusion *critical rationalism*. How, then, does Kant arrive at critical rationalism? To answer this question – the principal aim of our investigation – we must scrutinize the nature of rational cognition itself.[2] It is both unfortunate and somewhat surprising that despite

[1] All citations from the *Critique of Pure Reason* follow the standard A/B-edition pagination. All translations of Kant's published works are taken from the Cambridge Edition of Kant's works, unless noted otherwise. All translations of Kant's unpublished works and of other figures are my own, unless noted otherwise. This goes for the entire project.
[2] In this investigation, I will be primarily concerned with *theoretical* rational cognition, since this is the kind of rational cognition at issue in the first *Critique*. However, Kant argues that reason can reach not only *practical* cognition (AK 5:4-5), but also various theoretical conclusions that fall short of cognition. This restriction to theoretical rational cognition will be implicit below. For the sake of readability, the introduction will omit exhaustive citations of supporting passages.

its centrality to the eponymous project of the *Critique of Pure Reason*, Kant's overarching account of rational cognition has remained largely neglected.[3]

And yet attaining rational cognition was central to the eighteenth-century German rationalist tradition inaugurated by Leibniz. In this tradition, reason is characterized as a faculty that cognizes connections among truths. As Leibniz puts it in the *New Essays*: "Finally the faculty which consciously perceives [*s'aperçoit*] this connection of truths, or the faculty of reason, is also called *reason*." (A VI, 6, 425). Essential to reason is the power to draw logical (or deductive) inferences. By successfully exercising this power, reason can attain further cognitions. For instance, reason can cognize q by inferring it from cognitions of (i) $p \rightarrow q$ and (ii) p via the application of modus ponens. So even if cognition of q had never been directly wrought through experience, reason "provides a way of foreseeing an occurrence without having to experience the sensible links between images, which the beasts are reduced to doing." (AG 293).

Yet for the eighteenth-century German rationalist tradition, reason is not content with drawing inferences all day. Reason demands explanation; it aims to cognize not merely *that* something holds, but *why* it holds. To cognize why something holds, reason must cognize it *from its ground*. A ground "especially and par excellence" is not merely a basis for inferring something, but also *that in virtue of which* something holds. As Leibniz puts it: "But it is called ground [*raison*], especially and par excellence, if it is the cause not only of our judgment but also of the truth itself—

[3] For instance, a recent lengthy exchange about Kant's overarching account of cognition among leading scholars lacked any explicit discussion of rational cognition. Cf. Watkins and Willaschek (2017), Grüne (2017), and Chignell (2017). The nature of rational cognition also tends to get short shrift in systematic readings not only of the first *Critique* as a whole (cf. Strawson 1966, Allison 2004, and Allais 2015), but also of the Transcendental Dialectic, where the limits of rational cognition in metaphysics are supposed to be illustrated (cf. Grier 2001, Willaschek 2018, 36-8, and Proops 2021). The former works instead largely focus on experiential cognition (of perceptually occurrent objects) as the paradigmatic form of cognition. Indeed, there is a long history in Kant scholarship of emphasizing experiential cognition at the expense of the titular role of reason in the first *Critique*. In his classic commentary, Vaihinger (1922) goes so far as to advance a "Copernican" interpretation. Instead of conforming our interpretation to reason's titular role, *experience* should be added to the title(!): "The title '*Critique of Pure Reason*' is to be completed through the addition [*Zusatz*]: '*Theory of Experience.*'" (8).

which we call also an *a priori ground* […]" (A VI, 6, 425).[4] By cognizing something from its ground, reason gains explanatory insight into why it holds. The most influential German philosopher between Leibniz and Kant, Christian Wolff (1679-1754), notes that most people cognize that *the sun rises early in the morning* from experience. Yet the astronomer has "insight into the cause [*Ursache*] of the heavenly movements and into the connection of the earth with the heavens, cognizes [*erkennt*] this through reason, and he can demonstrate *why* and *at what time* it must happen." (*Deutsche Metaphysik* §372). The geometer likewise can cognize why figures have the geometric features they do by inferring these features from cognition of more basic geometric features via geometric principles. And precisely because philosophical cognition likewise involves cognizing things from their grounds, it is a form of rational cognition. As Wolff (like others in this tradition) says: "Who is truly instructed in philosophical cognition perceives the ground of that by which something is or is produced, and therefore the connection of both what is coexisting and mutually successive, consequently of true universal propositions or of universal truths. Philosophical cognition is therefore rational [cognition] (§483)." (*Psychologia Empirica* §499). For instance, the metaphysician aspires to rationally cognize why this world exists from its ultimate grounds (e.g. in God).[5]

Unfortunately, the eighteenth-century German rationalist tradition's lofty aspiration for rational cognition from grounds is plunged into crisis. At the core of this crisis is not yet another debate about whether everything has a ground (as the principle of sufficient reason implies).[6] Rather, the core problem lies in *how rational cognition from grounds is possible at all*. Starting from cognition of a

[4] As Leibniz indicates here, rational cognition from grounds is a kind of *a priori* cognition. For the inference of something from its ground obtains independently of experience. *Mutatis mutandis* for rational cognition in general. This point has already been emphasized by Adams (1994), Hogan (2009), and Smit (2009). Although the notion of the *a priori* is not the primary focus of the present investigation, it will inevitably surface from time to time.

[5] The notion of ground has experienced a renaissance in contemporary philosophy. Many hold that metaphysics (broadly construed) aims to establish *what grounds what*, an aim cashed out in terms of grasping the grounded from their grounds. As Schaffer (2009) puts it: "if numbers are indeed grounded in the concrete realm, then (i) they may be known via their concrete grounds, and (ii) they would be brought down to earth." (361).

[6] *Pace* Hogan (2009) and others, who place the PSR at the core of this crisis.

ground, how is it possible for reason to cognize what it grounds? The answer requires specifying *on pain of what* a consequence (=the grounded) follows from its ground. Without an answer, the possibility of rational cognition from grounds would remain inexplicable – the very thing that reason abhors! I call this *the problem of rational cognition*.

Despite agreeing *that* rational cognition from grounds is possible, Leibniz's successors sharply disagree about *how* it is possible; they disagree about the best solution to this problem. "In the beginning," Kant recounts, "under the administration of the dogmatists, her [reason's – JS] rule was despotic. Yet because her legislation still retained traces of ancient barbarism, this rule gradually degenerated through internal wars into complete anarchy […]" (Aix). **Chapter I** traces the problem of rational cognition back to two warring factions among Leibniz's successors.[7]

On one side is the faction led by Wolff, later lauded by Kant as "the greatest of all dogmatic philosophers." (Bxxxvi).[8] To explain how rational cognition is possible, Wolff advances *logicist rationalism*. On this view, reason's sole highest (or axiomatic) principle is the principle of non-contradiction (*Ontologia* §55). The rules and principles that express connections between grounds and their consequences are accordingly logically necessary; they are derivable through logical analysis.[9] Accordingly, something is rationally cognizable from its ground by cognizing that it follows from its ground *on pain of contradiction* in accordance with the (logically necessary) rules or principles that express their connection.

On the other side is the Pietist faction, whose most influential proponent was Christian Crusius (1715-1775). Crusius launches incisive criticisms of Wolff's logicist rationalism, arguing that

[7] Given significant interpretative complexities surrounding Leibniz's view here, I will not attempt to settle it. In addition, Kant engages with Leibniz's successors far more directly than he does with either Leibniz or even earlier seventeenth-century rationalists (such as Descartes and Spinoza). This provides further impetus to focus on Leibniz's successors.
[8] Although Wolff and his followers (such as Alexander Baumgarten and Moses Mendelssohn) are often described as Leibnizians, it should not be thought that they adopt Leibniz's doctrines *in toto*. More on this in Chapter I.
[9] For Wolff, the notions of *rule* and *principle* are both defined as expressing connections of grounding (*Ontologia* §475 and §866).

not all necessary connections (and the principles expressing them) are reducible to logical ones. He instead advocates an *anti-logicist rationalism*, which adds two *non-logical* principles to the highest principles of reason [*höchste Grundsätze der Vernunft*] (§262 *Weg*). These non-logical principles map the order of possibility onto the order of what is thinkable to reason. They entail that if two elements cannot be separated from each other in thought, they cannot be separated from each other in reality. These principles thereby make possible rational cognition of non-logically necessary connections based on what is thinkable to reason. For instance, suppose thing A does not exist at time t_1 but starts to exist at a subsequent time t_2. Crusius claims that it is unthinkable (but not contradictory) for thing A to lack a cause: if "someone said that thing A is generated without a cause, he would say something absurd [*ungereimtes*], but nothing contradictory." (*Weg* §260). Since thing A cannot be thought without a cause (despite no contradiction), Crusius' non-logical principles imply that A stands in a (non-logically) necessary connection to some cause. Nonetheless, I argue that he faces paradox in accounting for how the necessary connection between the order of thinkability and the order of possibility can itself be rationally cognized. Ultimately, then, Crusius' anti-logicist rationalism fares no better than Wolff's logicist rationalism. The problem of rational cognition remains; complete anarchy looms over their opposing attempts to render explicable the very possibility of rational cognition from grounds.

In **Chapter II**, I argue that, some twenty years prior to the first *Critique* (1781), the young Kant's dissatisfaction with his rationalist predecessors' accounts of rational cognition from grounds helps to awaken him from dogmatic slumber. This thesis is at odds with two prevailing narratives. On the one hand, one traditional narrative construes Kant's awakening as arising from his skepticism about some individual metaphysical principle (e.g. some causal principle or the PSR) in

the years immediately preceding the first *Critique*.[10] On the other hand, a more recent *anti-logicist* narrative construes Kant's break as arising with his introduction of the notion of a *real* ground in the mid-1760's.[11] Unlike a *logical* ground, no amount of logical analysis of a real ground reveals what it grounds (AK 2:202-4). For instance, Kant argues at the time that substances are real grounds of their inhering accidents, causes are real grounds of their effects, and God is a real ground of possibility. So on the latter narrative, Kant awakens from his dogmatic slumber in the mid-1760's by siding with Crusius' anti-logicist rationalism against Wolff's logicist rationalism.

Against both narratives, I propose that Kant's introduction of real grounds does not defeat the threat of dogmatism, but rather generates it in the first place. The notion of a dogma for Kant is technical: "A direct synthetic proposition from concepts is a dogma" (A736/B764). More precisely, a *dogma* is a non-logical principle cognizable through reason's unaided power of thought. Dogmas would make it possible for reason to cognize connections of real grounding based upon whether they are (un)thinkable to it (even in the absence of any contradiction). In this technical sense, the non-logical principles introduced in Crusius' anti-logicist rationalism are dogmas.[12] I argue that Kant's dogmatic awakening required just that: a wholesale rejection of *all* dogmas. I accordingly reconstruct the *Inquiry*'s (1764) neglected argument against Crusius' dogmas (AK 2:293-6). Kant concludes there that human reason simply lacks any dogmas: "These two principles [the principle of identity and non-contradiction – JS] together constitute the supreme universal principles, in the formal sense of the term, of human reason in its entirety." (AK 2:294). Thus, rational cognition from real grounds could only be possible *without the dogmas*. This means that reason must look

[10] Proponents of this narrative include (among many others) Vaihinger (1922), Kemp Smith (1923), Robert Paul Wolff (1960), Beck (1978), and Kuehn (1983).
[11] Proponents of the anti-logicist narrative include Laywine (1993), Watkins (2005, 169-70), Anderson (2015, 10-11 and 34), and De Pierris and Friedman (2018).
[12] This characterization of dogmas extends back to Kant's works in the mid-1760's (AK 2:358 and AK 17:360).

beyond itself for the non-logical principles that would make possible rational cognition from real grounds.

But if not from reason itself, from where do these principles arise? As Kant puts his puzzlement in the contemporaneous *Negative Magnitudes*: "As for this real ground and its relation to its consequence my question presents itself in the following simple form: How am I to understand the fact that, because something is, something else is?" (AK 2:202). Without an answer, the rationalist demand for rational cognition from real grounds remains a mere dream.[13] Unfortunately, this question goes largely unanswered in his works in the mid-1760's. *Negative Magnitudes* itself ends on a promissory note: "I have reflected upon the nature of our cognition with respect to our judgments concerning grounds and consequences, and one day I shall present a detailed account of the fruits of my reflections." (AK 2:204).

Almost twenty years later, the *Critique of Pure Reason* fulfills that promissory note. In the court of reason, Kant presents himself not as an enemy of reason's metaphysical aspirations (as he is sometimes construed), but rather as an advisor seeking to curtail her pretensions (Axi-ii). Its titular project aspires to establish reason's boundaries [*Grenzen*], partitioning the cognitions that lie within reason's cognitive powers from those cognitions that lie beyond them (Axii). The boundary-determining project of a critique of pure reason not only concerns the possibility of rational cognition from grounds, but it is itself an exercise in rational cognition – reason's self-cognition [*Selbsterkenntnis*] of its own boundaries (Axi). Specifically, Kant says, this project proceeds "critically, by getting to the bottom of the primary sources of our cognition. Thus the determination of the boundaries of our reason can only take place in accordance with *a priori* grounds" (A758/B786). That is, the boundaries of rational cognition are to be established *from their grounds* within the nature

[13] When he recounts his dogmatic awakening, Kant says that Hume had previously recognized this point, leading Hume to a form of skepticism about rational cognition (AK 4:257). More on the Hume connection in chapter II.

of the faculty of reason itself ("the primary sources of our cognition"). But through what notion of ground could reason's boundaries be rationally cognized from their grounds? Regardless of how far these boundaries extend, the very possibility of undertaking a critique of pure reason stands or falls with this question. Unfortunately, this question has been seldom recognized, much less addressed.

In **Chapter III**, I reconstruct Kant's answer; I elucidate the notion of ground required for a critique of pure reason to be possible at all. His answer emerges from the following two considerations. First, he repeatedly claims in various unpublished works that the notion of a (sufficient) ground admits of a definition: "Now our definition is brought right into order: the ground is that which, having been posited, another thing is posited determinately […] Determinately means according to a universal rule." (AK 29:808).[14] According to this *nomological notion* of ground, if something is a (sufficient) ground, its positing suffices for the positing of something else in accordance with a universal rule. Different kinds of grounds are differentiated by different universal rules and principles (causal laws, geometric principles, etc.). Second, reason's nature is essentially both inferential and discursive; its cognitions must run through inferences via discursively represented rules and principles: "here we will distinguish reason from understanding by calling reason the faculty of principles. […] I would therefore call 'cognition from principles' that cognition in which I cognize the particular in the universal through concepts." (A299-300/B356-7). Given these two key considerations, I conclude that reason must employ the nomological notion of ground if rational cognition from grounds is to be possible at all – and *a fortiori* if rational cognition of reason's boundaries from their grounds is to be possible. To determine its own boundaries, then, reason needs *principles*. As Kant suggests, a critique of pure reason provides "the decision about the

[14] Such passages belie the claim of Stang (2019) and Watkins (2019) that Kant's notion of ground is primitive, failing to admit of any analysis.

possibility or impossibility of a metaphysics in general, and the determination of its sources, as well as its extent and boundaries, all, however, from principles." (Axii).[15]

With this requirement on a critique of pure reason in hand, the key question becomes how far reason's boundaries extend. In the B preface, Kant helpfully divides "metaphysics, as rational cognition" into two parts (Bxvi). Whereas the first part concerns objects of possible experience; the second part concerns objects beyond possible experience (e.g. God and the soul). The first *Critique*'s core positive conclusion is that reason finds success in the first part of metaphysics; the understanding's cognition of *a priori* categorial laws that ground the possibility of objects of possible experience can be explained (Bxix). These categorial laws include the pure principles of the understanding (e.g. *all appearances are extensive magnitudes* and *all alterations have a determining causal ground*.). Call this positive conclusion – that the understanding's *a priori* cognition of categorial laws can be explained – *categorial rationalism*. Yet this success in the first part of metaphysics is said to lead to the first *Critique*'s core negative conclusion, which concerns the second part of metaphysics: rational cognition of objects beyond possible experience is impossible (Bxix-xx, quoted below). Call this negative conclusion *rational ignorance*. By restricting rational cognition to the boundaries of possible experience, rational ignorance cuts off the traditional rationalist's aspiration for rational cognition of grounds beyond these boundaries (e.g. of the soul and God). Categorial rationalism and rational ignorance jointly constitute (what I call) Kant's *critical rationalism*. In short, critical rationalism means that if *a priori* cognition of the laws underlying objects within possible experience is to be saved, rational cognition of objects beyond possible experience must be denied.

[15] The normative question of why one notion (rather than another) ought to be presupposed in metaphysics has been raised anew by Dasgupta (2018). His formulation of the problem acts as a guiding thread in this chapter. Based on our investigation of why reason must employ the nomological notion of ground, I suggest that Kant has a potentially promising response to this problem.

In the B preface, Kant signals that the connection between categorial rationalism and rational ignorance is mediated by one of the first *Critique*'s most infamous doctrines: idealism about the categorial laws cognizable *a priori* by the understanding. I will call this idealist thesis *categorial idealism*.[16] As he describes this connection:

> For after this alteration in our way of thinking ["namely that we can cognize of things *a priori* only what we ourselves have put into them" – JS] we can very well explain [*erklären*] the possibility of a cognition a priori, and what is still more, we can provide satisfactory proofs of the laws that are the a priori ground of nature, as the sum total of objects of experience - which were both impossible according to the earlier way of proceeding. But from this deduction of our faculty of cognizing a priori in the first part of metaphysics, there emerges a very strange result, and one that appears very disadvantageous to the whole purpose with which the second part of metaphysics concerns itself, namely that with this faculty we can never get beyond the boundaries of possible experience […] But herein lies just the experiment providing a checkup on the truth of the result of that first assessment of our rational cognition *a priori*, namely that such cognition reaches appearances only, leaving the thing in itself as something actual for itself but uncognized by us. (Bxix-xx).

This passage leaves us with the following two questions. First, how does Kant argue from categorial rationalism to categorial idealism? Second, how does he argue from categorial idealism to rational ignorance? Despite being central to his critical rationalism, Kant's answers remain mired in interpretative controversy. By heeding the first *Critique*'s overarching aim of assessing the possibility of rational cognition, I offer novel reconstructions of Kant's answers in **Chapters IV** and **Chapter V**, respectively.

Kant's above argument from categorial rationalism to categorial idealism takes the form of an inference to the only possible explanation: the understanding's *a priori* cognition of categorial laws (categorial rationalism) can be explained only if these laws are ideal. This argument for categorial idealism has been widely derided. How can Kant rule out that categorial laws are cognizable *a priori*,

[16] Kant likens the ideality of categorial laws to the ideality of space and time: "For laws exist just a little in the appearances, but rather exist only relative to the subject in which the appearances inhere, insofar as it has understanding, as appearances do not exist in themselves, but only relative to the same being, insofar as it has senses." (B164). Other idealist doctrines advanced in the first *Critique* (e.g. the ideality of space and time) unfortunately lie outside the scope of the present investigation. As I discuss in chapter IV, not all scholars ascribe categorial idealism to Kant.

but nonetheless not ideal? In **Chapter IV**, I argue that the key to reconstructing this argument lies in appreciating the problem; what would it meant to explain the understanding's *a priori* cognition of categorial laws ("we can very well explain the possibility of a cognition a priori")? The prevailing view has it that explanation amounts to justification; idealism alone can provide adequate justification for the understanding's *a priori* cognition of categorial laws (e.g. against the threat of skepticism).[17] *Pace* the prevailing view, I argue that *explanation* [*Erklärung*], in Kant's technical sense, does not concern mere justification. Rather, to explain something would require rationally cognizing it from its ground. Even once justification for the understanding's *a priori* cognition of categorial laws has already been established (via the Transcendental Deduction), reason still takes the understanding's *a priori* cognition of categorial laws as a datum to be explained. A possible explanation would have to enable the understanding's *a priori* cognition of categorial laws to be rationally cognized from its ground (i.e. the ground in virtue of which those laws obtain). As Kant likewise suggests in the B Transcendental Deduction (immediately before inferring categorial idealism): "the question now arises how it is to be comprehended that nature must follow them [*wie es zu begreifen sei*], i.e., how they [=the categorial laws – JS] can determine a priori the combination of the manifold of nature without deriving from the latter." (B163). To *comprehend* something (in Kant's technical sense) involves rationally cognizing it from its ground (A411/B438).

Kant suggests that there are two (and only two) possible ways in which categorial laws might be grounded, and thus two (and only two) candidate explanations of the understanding's *a priori* cognition of categorial laws (A92/B124-5). *Either* the categorial laws themselves are grounded in how nature is in itself (a view I call *categorial realism*) *or* categorial laws are grounded in nature's conformity to the understanding's *a priori* representation of categorial laws – whereby the

[17] Among many others, see Bennett (1966), Strawson (1966), Kitcher (1980), Pippin (1982), Pereboom (1990), Bonjour (1998), and Marshall (2014).

understanding "legislates" or "prescribes" these laws to nature (per *categorial idealism*). I proceed to argue that, on the one hand, if categorial realism were true, the understanding's *a priori* cognition of categorial laws could not be rationally cognized from its ground. On the other hand, if categorial idealism were true, the understanding's *a priori* cognition of categorial laws could be rationally cognized from its ground. Thus, categorial idealism emerges as the price of securing reason's demand for explanation – its demand to cognize the understanding's *a priori* cognition of categorial laws from its ground.

This brings us to the second part of metaphysics and Kant's thesis of rational ignorance. This thesis is said to be proven in the Transcendental Analytic: "we have already proved in the Transcendental Analytic […] that all the inferences that would carry us out beyond the field of possible experience are deceptive and groundless" (A642/B670). So how does his master argument for rational cognition go there? In answering this question, the prevailing approach (popularized by Strawson's *Bounds of Sense* 1966) does not scrutinize the nature of rational cognition. Rather, it extends Kant's constraints on immediate experiential cognition to rational cognition. Some proponents of the prevailing approach accordingly maintain that any cognizable object must be givable in sensible intuition.[18] Others maintain that any cognizable object must be thought through sensible concepts (i.e. through concepts with sensible content).[19] Since objects beyond possible experience cannot be given to our sensible intuition or thought through sensible concepts, it would follow that all cognition of such objects is impossible.

In **Chapter V,** I first argue that the prevailing approach faces trenchant difficulties. By using constraints on immediate experiential cognition to explain the boundaries of rational cognition, the prevailing approach amounts to a *heteronomous* approach to rational ignorance. Yet why should reason

[18] In more recent Anglophone scholarship, see Langton (1998), Allais (2015), Chignell (2017), and Watkins and Willaschek (2017).
[19] Cf. Strawson (1966), Bennett (1974), and Willaschek (2018, 254-63).

submit to constraints on immediate experiential cognition? After all, Kant's German rationalist predecessors freely admit that objects beyond possible experience are not intuitable by us (sensibly or otherwise). Yet this does not preclude rationally inferring their existence or features from what is given in experience. As Wolff puts it regarding God, "We do not cognize God intuitively [*intuitive*], because our intuitive cognition of different things is restrained by the senses […] He must therefore be cognized from creatures, insofar as we infer from what is found in them to what must be found in God." (*Theologia Naturalis* §1095). *Pace* the heteronomous approach, I propose that Kant advances an *autonomous approach* to rational ignorance. On this approach, the boundaries of rational cognition are explained not through imposing constraints on immediate experiential cognition onto rational cognition, but rather through *reason's own principles*. As Kant suggests, "reason should take on anew the most difficult of all its tasks, namely, that of self-cognition, and to institute a court of justice, by which reason may secure its rightful claims while dismissing all its groundless pretensions, and this not by mere decrees but according to its own eternal and unchangeable laws" (Axi-Axii). Precisely because rational ignorance would be reached through reason's own principles, any self-respecting rationalist *would have to* accept it. They could not complain that reason is being hobbled by contrived external constraints on its cognition. The autonomous approach would therefore furnish a far more powerful argument for rational ignorance.

To develop the autonomous approach, I argue in the rest of Chapter V that since rational cognition involves cognition from principles, Kant's master argument for rational ignorance must hinge on the principles required to rationally infer the existence of objects beyond possible experience. I propose that the requisite principles would lie in (what Kant calls) *pure principles*, which are principles devoid of any experiential content. Examples include *everything that exists has a sufficient ground of its existence, all contingently existing beings are ground in a necessary first cause*, etc. Now Kant does not seem to challenge the veracity of the pure principles themselves (lest the legitimacy of reason

itself be called into question). Rather, I propose that his key premise is this: it is impossible to cognize that existing objects satisfy the antecedents ("the conditions") of these principles. That is, it is impossible to cognize the *objective reality* of pure principles (here I am both borrowing and interpreting Kant's phrase). I argue that this key premise is entailed by the ideality of categorial laws in conjunction with certain general conditions on rational cognition shared by Kant and his German rationalist predecessors (including Wolff and Crusius). This key premise would entail that reason cannot use its pure principles to infer the existence of objects beyond possible experience. For instance, given that it would be impossible to cognize that any existing object satisfies the pure concept of contingency needed to satisfy the antecedent in the pure principle *all contingent beings have a necessarily existing cause*, then even if this principle is true (and cognizable by reason as such), reason cannot infer the existence of a necessarily existing cause through this principle. In this way, the rationally cognizable principles secured in the first part of metaphysics (viz. the ideal categorial laws that ground the possibility of objects of possible experience) would explain why reason cannot use pure principles to extend its cognition to objects beyond possible experience.

If the first *Critique*'s assessment of the possibility of rational cognition is correct, the aspiring rationalist is left with the following stark dilemma. On the one hand, she can remain on the dogmatic path with Wolff and Crusius, refusing to accept critical rationalism. This leaves the explicability of the understanding's *a priori* cognition of categorial laws susceptible to attack by both skeptics of rational cognition ("a kind of nomad who abhor all permanent cultivation of the soil") and indifferentists ("the mother of chaos and night in the sciences") (Aix-x). On the other hand, she can join Kant on the path of critical rationalism. Although critical rationalism would restrict rational cognition to the boundaries of possible experience (per rational ignorance), she could lay claim to the explicability of the understanding's *a priori* cognition of categorial laws (per categorial

rationalism). In the end, the *Critique of Pure Reason* invites the aspiring rationalist onto the path of critical rationalism – not in order to undermine reason's cognition, but to save it:

> The critical path alone is still open. If the reader has had pleasure and patience in traveling along in my company, then he can now judge, if it pleases him to contribute his part to making this footpath into a highway, whether or not that which many centuries could not accomplish might not be attained even before the end of the present one: namely, to bring human reason to full satisfaction in that which has always, but until now vainly, occupied its lust for knowledge. (A855/B883).

Reader's note: Despite telling a grander story, the five chapters of the current project are presented entirely independently of each other. This approach has costs and benefits. One benefit: each chapter contains a self-standing line of argument, which does not require the other chapters to understand or appreciate. One cost: certain connections that tie the chapters to each other (and to Kant's works) remain to be fully spelled out. I hope to tie these loose ends in future work – weaving the rich tapestry that entwines Kant within the eighteenth-century German rationalist tradition.

Chapter 1

In Leibniz's Wake: Rationalist Paradise Lost

I. Introduction

Human beings incessantly seek explanation; we ask *Why* and search for a *Because*. We might ask: why did the Big Bang happen? Why is anything possible at all? Why are you reading this? In its most ambitious form, *metaphysical rationalism* entails that this search for explanation is never in vain. Its commitment to the principle of sufficient reason (the PSR) guarantees that everything has a sufficient reason, or ground.[20] As Leibniz, one of the greatest proponents of rationalism, says in the *Principles of Nature and Grace*:

> So far we have just spoken as simple *physicists;* now we must rise to *metaphysics,* by making use of the *great principle,* little used, commonly, that *nothing takes place without sufficient ground* [*raison*]*,* that is, that nothing happens without it being possible for someone who cognizes [*connaîtrait*] enough things to give a ground sufficient to determine why it is so and not otherwise. (AG 209, translation modified).

The purported scope of the PSR—that *everything* has a sufficient ground—has received much attention. But what is it to be a sufficient ground for the rationalist? The PSR presupposes some notion of ground; it does not establish this notion.[21] I shall argue that a foundational crisis engulfing Leibniz and his eighteenth-century German rationalist successors (including Christian Wolff and Christian Crusius) is precipitated by their distinctly rationalist characterization of the notion of ground—a crisis that threatens the possibility of anything being a ground at all.[22]

Leibniz attributes two roles to grounds above. First, he attributes a *metaphysical* role. A sufficient ground brings about its consequence; it "determines why it is so and not otherwise." For

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[20] Note that the term "rationalism" is sometimes used to designate doctrines that do not concern grounds, e.g. the doctrine that there are innate ideas. Such uses of the term will not be at issue here.

[21] As Heidegger (1929) astutely notes in *On the Essence of Ground*: "Yet what constitutes the essence of ground is not determined *in* this principle [of sufficient reason]. This [essence] is *for* this principle presupposed as a self-evident 'representation' [*selbstverständliche'Vorstellung'*]." (9, my translation).

[22] I will treat "ground" and "reason" as synonyms here. These terms [*L: ratio*; *F: raison*; *G: Grund*] are generally used synonymously by these philosophers. I will follow Leibniz and his successors in using "consequence" [*L: consequentia* or *rationatum*; *F: conséquence*; *G: Folge*] as a synonym for *what is grounded*.

instance, a body obtains in virtue of its parts; its parts jointly bring about its compositional and geometric features (such as its shape). Second, Leibniz attributes a *cognitive* role to grounds. For anything that has a sufficient ground, it must be possible (in principle) to cognize it from its sufficient ground; it must be "possible for someone who cognizes [*connaîtrait*] enough things to give a ground sufficient to determine why it is so and not otherwise." By cognizing something from its ground, our reason cognizes not merely *that* it is the case, but *why* it is the case. For instance, whereas the senses might reveal *that* a body has a certain shape, rational cognition of its shape from its ground reveals *why* it has that shape. By playing this cognitive role, a ground satisfies the rationalist's core demand for the intelligibility or explicability of reality.

I will call the idea that this cognitive role is constitutive of grounds *the principle of rational cognition*. A bit more formally:

> **Principle of Rational Cognition:** entity α is a sufficient ground of entity β only if β is rationally cognizable from α.[23]

Without the principle of rational cognition, the PSR leaves open that grounds bring about their consequences in an unintelligible way. Only when the PSR is taken to presuppose the principle of rational cognition do the gates open to *rationalist paradise*: a conception of reality fully intelligible or explicable to reason—in which everything has a ground from which it can be rationally cognized. In rationalist paradise, every *Why* posed by reason admits of an intelligible *Because*; the great chain of being runs hand in hand with the great chain of cognition.

Yet it is widely held that Leibniz and his German rationalist successors face eviction from rationalist paradise. What precipitates the threat of eviction? Proponents of the prevailing view

[23] Leibniz characterizes many kinds of entities as grounds, including things, events, states of affairs, propositions, and truths. Cf. AG 19, AG 209, AG 217, and G VII 419. Framing the principle of rational cognition in terms of entities is meant to capture his flexibility about the relata of ground-consequence relations here. But I also leave open the interpretative possibility that Leibniz ultimately privileges one way of understanding the relata of grounding over others. *Mutatis mutandis* for his German rationalist successors.

suppose that the PSR is the core rationalist doctrine about grounds; the principle of rational cognition takes a subsidiary role.[24] They accordingly maintain that the threat of eviction primarily stems from some challenge to the PSR—a challenge to the idea that absolutely *everything* has a sufficient ground. Proponents of the prevailing view disagree about which exact challenge to the PSR is most fundamental—whether it concerns some implication of the PSR or the principle's very basis.[25] But they all agree that the challenge concerns the PSR, and thus the extension (or scope) of the notion of ground—whether absolutely *everything* has a sufficient ground.

I do not deny that these (and perhaps other) challenges to the PSR threaten eviction from rationalist paradise for Leibniz and his German rationalist successors. Yet my central thesis is that a certain challenge to the principle of rational cognition poses a more fundamental threat to rationalist paradise for these figures. The challenge is this: regardless of whether everything has a ground, how it is possible for anything at all to be (or have) a ground that satisfies the principle of rational cognition? That is, under what conditions is rational cognition from grounds possible; just from cognition of a ground, how is it possible to rationally cognize its consequence? Since this challenge concerns the content of the notion of ground, it is aptly described as an *intensional* challenge. That this challenge would have to admit of an answer follows from a recursive application of the principle of rational cognition to the notion of ground itself. Regardless of whether everything has a ground,

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[24] Consider Della Rocca's (2013) description of metaphysical rationalism:

> This form [of rationalism—JS] is the commitment to the intelligibility of the world and of all the things in the world. On this view, the world and the things in the world are through and through intelligible. Nothing happens for no reason. On the contrary, whatever takes place, whatever takes place, whatever exists, takes place or exists for a reason. Everything. On this view there are no brute facts. Each thing that exists has a reason that is sufficient for explaining the existence of the thing. (2).

Della Rocca's characterization of the PSR seems to already build in the cognitive component expressed in the principle of rational cognition. Or take Hogan (2013): "The PSR's guarantee of a reason for every feature of reality is understood as entailing that a sufficiently enlightened mind could in principle know every fact about every existent individual through a purely intellectual analysis applied to mere concepts of things." (274-5). Cf. Rutherford (1992), Watkins (2005, 170), Della Rocca (2008), Lin (2012), Dasgupta (2016), and Look (2018).

[25] On Hogan's (2009) version of the prevailing view, for instance, the challenge involves the PSR's implications precluding (libertarian) freedom. By contrast, Boehm (2014) suggests that the challenge involves the PSR's Spinozistic implications. Or, per Watkins (2005) and Anderson (2020) (among many others), the threat primarily stems from Humean scruples about our cognition of the PSR itself.

suppose that the fact that *something is rationally cognizable from its ground* has a ground (i.e. in the form of jointly sufficient conditions under which grounds do so). In that case, the principle of rational cognition implies that this fact must be rationally cognizable from its ground. Otherwise, the principle of rational cognition would mark an exception to itself.

In claiming that this challenge to the principle of rational cognition would be *more fundamental* than a challenge to the PSR, I mean that it carries deeper implications for the integrity of rationalist paradise. A challenge to the PSR might lead us to doubt (or even deny) that *absolutely everything* has a sufficient ground. By contrast, since this challenge to the principle of rational cognition concerns the notion of ground itself, it threatens to undermine how *anything at all* has (or is) a sufficient ground. In effect, whereas a challenge to the PSR might lead us to exclude certain things from rationalist paradise, this challenge to the principle of rational cognition threatens to dissolve the very adhesive that binds everything in rationalist paradise together.

To elucidate and defend my central thesis, my modus operandi is to outline how this challenge unfolds for Leibniz and subsequently prompts a cognitive turn in metaphysics among his successors. In the first part of our investigation, we will see that addressing this challenge pressures Leibniz to concede that grounds necessitate their consequences. Without being necessitated by its ground, something could not be rationally cognized from its ground. Addressing this challenge therefore comes to stand or fall with the nature of this necessary connection and our rational cognition of it. The challenge accordingly leads to the following dilemma. On the first horn, all of these necessary connections are *logically* necessary; they all hold on pain of contradiction (the logicist horn). On the second horn, some of these necessary connections are *non-logically* necessary (the anti-logicist horn). As we will see, the PSR is powerless to resolve this dilemma. What's more, Leibniz's considered response to the dilemma is up for interpretative debate; I will not try to settle it here.

But this challenge and the accompanying dilemma do not die with Leibniz. Two of his most influential German rationalist successors, Christian Wolff (1679-1754) and Christian Crusius (1715-1775), construe rational cognition from grounds as constitutive of philosophical cognition itself.[26] Yet they come to blows over how rational cognition from grounds is possible. The second part of our investigation will reconstruct Wolff's case for embracing the logicist horn and Crusius' (largely neglected) incisive criticisms of it. The third part of our investigation will scrutinize Crusius' embrace of the anti-logicist horn. As we will see, their opposing responses mark a *cognitive turn* in metaphysics—a turn characterized by the introduction of (i) axiomatic principles that capture how rational cognition from grounds is possible and (ii) a basis for cognition of these axiomatic principles within the nature of our cognitive faculties. But I will conclude that the opposing responses to the dilemma offered by Wolff and Crusius reveal no easy way to sustain the principle of rational cognition. In brief, whereas Wolff's logicist rationalism seems susceptible to Crusius' criticisms, Crusius' anti-logicist rationalism is susceptible to paradox (as I detail below). So the threat of eviction from rationalist paradise stemming from the principle of rational cognition remains.

In section II, I sketch how Leibniz's connection between rational cognition and necessitation generates the dilemma of rational cognition. In section III, I outline how Wolff's cognitive turn in metaphysics leads him to embrace the logicist horn of the dilemma. In section IV, I detail Crusius' neglected criticisms of the logicist horn and his subsequent embrace of the anti-logicist horn. In section V, I argue that paradox looms over Crusius' anti-logicist rationalism. In section VI, I conclude by briefly touching upon the dilemma's Kantian aftermath.

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[26] As Wolff puts it:

> Philosophical cognition is rational. Who is truly instructed in philosophical cognition perceives the ground of that by which something is or is produced (§6 *Disc. Praelim.*), and therefore the connection of both coexisting and mutually successive things (§10 *Cosmologia*), consequently of true universal propositions or of universal truths (§505 *Logica*). Philosophical cognition is therefore rational (§483). (*Psychologia Empirica* §499).

For Crusius, see *Weg* §1 and §4.

Our investigation is not a postmortem of a dead philosophical issue. Many contemporary metaphysicians have alleged that a central aim of metaphysics is to establish what grounds what. But how is it possible to establish what grounds what? Some metaphysicians have suggested that establishing this requires being able to grasp the grounded from its sufficient ground—precisely as the principle of rational cognition states.[27] Nonetheless, these metaphysicians have done comparatively little to explain how something can be grasped from its ground. The eighteenth-century German rationalist tradition inaugurated by Leibniz illuminates the challenges that await.

II. Leibniz and the Dilemma of Rational Cognition

Leibniz's thinking about grounds was not static. For instance, he wrestles with whether the PSR is ultimately derivable from some more basic principle.[28] Telling this developmental story—much less assessing which parts of it remain stable—is a more ambitious goal than I can undertake here. Rather, by focusing on certain (comparatively stable) strands of Leibniz's thinking about the very nature of grounds, I hope to highlight a persistent challenge to the very possibility of rational cognition from grounds—which I will frame as the dilemma of rational cognition.

In the *New Essays*, Leibniz suggests that it is definitional of the general notion of ground that a ground provides *something from which something else can be cognized*: "A ground [*raison*] is a cognized truth [*la verité connue*] whose connection with some less cognized [*moins connue*] truth leads us to give our assent to the latter." (A VI, 6, 425).[29] The faculty of reason is characterized as a faculty for grasping such connections (A VI, 6, 425). The *New Essays* attributes the metaphysical role described above to only a subordinate kind of ground, which it calls grounds "especially and par excellence,"

[27] As Schaffer (2009) puts it: "if numbers are indeed grounded in the concrete realm, then (i) they may be known via their concrete grounds, and (ii) they would be brought down to earth." (361).
[28] For discussion, see Adams (1994, 67-71) and Bender (2016).
[29] The *New Essays* elsewhere clarifies that cognition need not be propositional; it can include acquaintance with an object or property. As the *New Essays* suggests: "Cognition [*la connaisance*] is taken still more generally, to ensure that it is also found in ideas or terms [*idées ou termes*] before one comes to propositions or truths." (A VI, 6, 304). By contrast, *knowledge* (and its cognates) is typically tied to propositional knowledge.

or *a priori grounds*: "But it is called ground [*raison*], especially and par excellence, if it is the cause not only of our judgment but also of the truth itself—which we call also an *a priori ground* […]" (A VI, 6, 425). That is, an *a priori* ground not only enables a rational inference to its consequence (it is "the cause of our judgment"), but also makes it the case that its consequence obtains (it is "the cause […] of the truth itself"). His essay Meditations on Truth, Knowledge, and Ideas (1684) similarly claims that "a thing is cognized *a priori* […] among other cases, when we understand the way in which a thing can be produced." (AG 26).[30]

If it is definitional of the general notion of ground that grounds provide something from which something else can be rationally cognized, this means that the principle of rational cognition is simply definitional of the general notion of ground. That would explain why grounds must satisfy the principle. What's more, actual practice might assure us that there are grounds (so construed). The geometer seems to attain rational cognition of geometric features from their grounds by applying geometric principles. The physicist likewise seems to rationally cognize why motions occur from their physical causal grounds by applying causal laws. Indeed, in his essay On Relations (1695), Leibniz says that a reasoner who could cognize the future states of the world from their causes contained within the present state of the world "would be a prophet who could see the future in the present just as if in a mirror." (G VIII 117-8). *Mutatis mutandis* for metaphysics; Leibniz rules out certain rivalling metaphysical hypotheses due to their failure to satisfy this principle. Consider his famous mill argument against the materialist claim that *matter grounds perception*. This argument rests on the premise that "we must further confess that *perception*, and what depends on it, is inexplicable in terms of mechanical grounds [*raisons*], that is, through shapes and motions." (*Monadology* §17).

[30] Cf. AG 19, AG 219, AG 294, and T 402. See Adams (1994, 109-11), Hogan (2009), and Smit (2009) for discussion of the notion of an *a priori* ground and its historical provenance before and after Leibniz. Since the notion of an *a priori* ground is the notion of ground primarily at issue in metaphysics (per Leibniz's "especially and par excellence" qualifier), I will use the term *ground* below as shorthand for *a priori grounds* and the term *rational cognition* as shorthand for rational cognition involving this kind of ground.

Regardless of how complete or perfect one's cognition of matter, one could never cognize perceptions from it. This premise is illustrated by the famous mill thought experiment. Leibniz subsequently infers from this premise that matter cannot ground perceptions, and thus that materialism is false. This inference presupposes the principle of rational cognition. For if grounds did not have to satisfy this principle, the materialist could simply claim that although matter bring about perceptions (per the metaphysical role of grounds), it is impossible to rationally cognize perceptions from matter.[31]

Leibniz, to be sure, recognizes that attaining rational cognition from grounds sometimes eludes us. But such cognitive limitations do not undermine the principle of rational cognition. For they merely reflect the nature of our finite intellects. They therefore do not imply that such cognition is *in principle* impossible—say, for God's infinite intellect. As Leibniz puts it in the Preface to the *New Essays*:

> I note, indeed, that I recognize that we are not allowed to deny what we do not understand, though I add that we have the right to deny (at least in the order of nature) what is absolutely unintelligible and inexplicable. I also maintain that substances (material or immaterial) cannot be conceived in their bare essence without activity, and that activity is of the essence of substance in general. And finally, I maintain that the conception of creatures is not the measure of God's power, but that their conceptivity, or ability [*force*] to conceive, is the measure of nature's power; everything in conformity with the natural order can be conceived or understood by some creature. (AG 304).

I leave a fuller investigation of what kinds of rational cognition from grounds are attainable for us (rather than merely for God) for discussion elsewhere.

In any case, even granting that the principle of rational cognition is definitional of ground and that this definition of ground admits of genuine instances, the following question remains: under what conditions is something rationally cognizable from its ground? Treating the principle of rational cognition as definitional of grounds no more explains how rational cognition from grounds

[31] For another instance of rational cognition from grounds in Leibniz (even if not under that label), see Rutherford's (1992) discussion of the intelligibility of finite substances from their natures.

is possible than treating the dormitive virtue as definitional of opium explains how opium induces sleep. To address this question, we will now see that Leibniz is pressured to accept that rational cognition from grounds requires a certain metaphysical presupposition—it requires grounds to *necessitate* their consequences. More formally:

> **Necessitation Backing Principle:** β is rationally cognizable from its ground α only if α necessitates β, i.e. only if $\Box(\alpha \rightarrow \beta)$.

Yet as I will highlight in this section, the kind(s) of necessary connection that holds between a ground and its consequence is ostensibly left increasingly obscure. Two ways of resolving this obscurity provide the two horns of (what I call) the dilemma of rational cognition.

In the *Discourse on Metaphysics*, Leibniz helpfully divides grounds into those involved in necessary demonstrations and those that are not (AG 46). Grounds involved in necessary demonstrations are grounds of necessary truths. To wit, they ground necessary truths "based on the principle of contradiction and on the possibility or impossibility of essences themselves." (AG 46). A truth admitting of a necessary demonstration is grounded in an essence; it would contradict the identity of the essence in question for the truth not to hold. The truth therefore follows from its ground on pain of contradiction ("based on the principle of contradiction"). For instance, consider the truth *all bachelors are unmarried*. Since part of the very identity of the essence of a bachelor is to be unmarried, this truth follows from this essence on pain of contradiction. This truth is thereby logically necessitated by its ground. Because this connection of grounding involves logical necessitation, it is scrutable to reason—namely, via logical analysis of the corresponding concept <bachelor> into its constituent parts (<unmarried> and <man>). *Mutatis mutandis* for other truths admitting of necessary demonstrations.[32]

[32] For more on Leibniz's connection of ontological priority ("priority in nature") with conceptual priority, see Rauzy (1994), Rutherford (1998), Di Bella (2005), and Futch (2005).

But some truths lack necessary demonstrations—including those regarding "the free will of God or his creatures" (AG 46). These truths accordingly would have a different kind of ground. Indeed, Leibniz faces pressure to deny that such truths have necessitating grounds at all. For free actions are generally viewed in his tradition as contingent; they did not have to happen. An agent who undertakes a particular free action could have refrained from doing so. Her action was therefore not necessitated by its ground. For instance, although Caesar is the causal ground of *his crossing the Rubicon*, he could have refrained from this action.

To accommodate the contingency of free actions, Leibniz sometimes proposes that free actions have *non-necessitating* sufficient grounds ("inclining grounds").[33] Since a non-necessitating sufficient ground does not necessitate its consequence, the presence of the ground is compatible with the negation of its consequence. Non-necessitating sufficient grounds would preserve the contingency of free actions; a free action did not have to occur even given the presence of its (non-necessitating) sufficient ground.

Yet for whatever its metaphysical virtues, this proposal problematizes rational cognition: how could something be rationally cognized from a non-necessitating sufficient ground? A consequence is not assured to obtain even given that its non-necessitating sufficient ground obtains. This metaphysical indeterminacy seems to generate a corresponding cognitive indeterminacy—even given complete cognition of this ground, the absence of its consequence remains open *for all we cognize*. For instance, given the non-necessitating sufficient ground of Caesar's crossing the Rubicon, it would remain metaphysically open for Caesar not to cross it. It therefore seems that just by cognizing this non-necessitating sufficient ground, his crossing would still not be cognizable. In short, without the force of necessitation, a ground seems powerless to enable rational cognition of its consequence.

[33] Cf. AG 28-9, AG 45-6, and AG 75-6.

At this juncture, Leibniz sometimes digs in his heels by defending the possibility of rational cognition from non-necessitating grounds (in effect, denying the necessitation backing principle). For instance, he sometimes appeals to his infinite analysis account of contingency. Unfortunately, this account is beset by familiar difficulties.[34]

His more typical response, however, eschews rational cognition from non-necessitating grounds. This response instead purports to reconcile necessitating grounds with the contingency of their consequences by distinguishing between two different kinds of necessity: absolute and hypothetical. On the one hand, something is *absolutely* necessary if it is necessitated by its ground alone. The consequences in the necessary demonstrations above are absolutely necessary, since they are necessitated by their grounds alone. On the other hand, something is *hypothetically* necessary if it is necessitated by its ground when combined with requisite background hypotheses. That is, a hypothetically necessary consequence follows necessarily from its ground once the requisite background hypotheses supplement its ground. The requisite background hypotheses encompass (among other things) certain general principles. For instance, the requisite background hypotheses for human free actions include "the moral principle that all minds will pursue what appears best to them." (AG 70).[35]

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[34] For discussion, see Russell (1903), Lovejoy (1936), Adams (1994, 25-30, 34-6), Cover and Hawthorne (2000), Lin (2012), and Jorati (2017). One might wonder why Leibniz does not defend the possibility of rational cognition from non-necessitating grounds by maintaining that a consequence need not be *certain* conditional on its ground. On this proposal, rational cognition of a consequence merely requires cognition that the consequence follows *with a sufficiently high degree of probability* conditional on its ground. Indeed, one might think that with enough background information about the character of a free agent, her future free actions could be grasped with a sufficiently high degree of probability. One line of response to this proposal would appeal to the conceptual containment theory of truth, which implies that all truths have to be demonstrable from their grounds with certainty. Another line of response would claim that *enabling certain rational cognition of something* and *being a sufficient ground* are conceptually connected: something is a sufficient ground of something else only if (and because) it enables *certain* rational cognition of the latter. Along these lines, Leibniz sometimes cashes out God's certain cognition of things in terms of his grasp of them from their sufficient grounds. Cf. AG 61, AG 70, and AG 102. At any rate, Leibniz clearly takes certainty to be distinctive of rational cognition: "Only reason is capable of establishing sure rules and of providing what uncertain rules lack by formulating exceptions to them, and lastly, capable of finding connections that are certain in the compulsion [*force*] of necessary consequences." (Leibniz, *New Essays* A VI, 6, 425).

[35] Cf. AG 61, T174, T 282, and T 439.

To illustrate, reconsider Caesar's crossing the Rubicon. Caesar had the power to not cross the Rubicon. *Crossing the Rubicon* is therefore not absolutely necessary relative to Caesar. Yet given the background principle that all minds will pursue what appears best to them and given that crossing the Rubicon appeared best to Caesar, *crossing the Rubicon* necessarily follows from its ground in Caesar. So despite its contingency, *crossing the Rubicon* is still hypothetically necessary; it has a hypothetically necessitating ground.[36]

In short, Leibniz purports to reconcile necessitating grounds with the contingency of their consequences by distinguishing hypothetical and absolute necessity. Whether this distinction preserves genuine contingency remains an open question. For instance, one might worry that insofar as the absolute necessity of hypothetical background assumptions cannot be avoided, the corresponding consequences will still be absolutely necessary.[37] Yet for purposes of understanding the possibility of rational cognition from grounds, the more pressing question is whether hypothetical necessity in fact rescues this possibility. That is, are hypothetically necessitated consequences rationally cognizable from their grounds? Answering this question requires specifying the kind of necessity at play in a hypothetically necessary connection. More precisely, it requires specifying (i) on pain of what something follows from its hypothetically necessitating ground and (ii) how cognition of this kind of connection is possible (e.g. through logical analysis or some other means).

Two possible lines of response furnish the two horns of (what I call) *the dilemma of rational cognition*. On the first horn of the dilemma, all grounds (and *a fortiori* all hypothetically necessitating grounds) logically necessitate their consequences. That is, from a sufficient ground (where this is

[36] This kind of hypothetical necessity, based on compatibility with moral principles, is sometimes called *moral necessity*. *Physical necessity*, based on compatibility with physical causal laws, is another kind of hypothetical necessity. Cf. FR 2-3, FR 20, and T 207. See Adams (1994), Lin (2014), and Jorati (2017, 126-8) for discussion.
[37] For discussion of this and other worries, see Lovejoy (1957), Carriero (1993), Adams (1994), Lin (2012), and Jorati (2017).

taken to build in all requisite background hypotheses), its consequence follows on pain of contradiction. I will call this horn *the logicist horn*. On the second horn of the dilemma, *at least some* grounds non-logically necessitate their consequences. If a sufficient ground *non-logically* necessitates its consequence, there is no contradiction entailed by combining the sufficient ground (building in all requisite background hypotheses) and the negation of its consequence. But this connection is nonetheless somehow impossible. I will call this horn *the anti-logicist horn*. Both horns are *prima facie* compatible with contingent truths, insofar as the grounds that necessitate them are not absolutely necessary.

Pending a response to this dilemma, the possibility of rational cognition from grounds promised by the principle of rational cognition remains inexplicable—thereby threatening eviction from rationalist paradise. Note that the PSR is orthogonal to not only the genesis of this dilemma, but also its resolution. Even if the PSR were denied, the dilemma will still arise for anything that does have a ground. And although the PSR entails that everything has a ground, it does not specify the kind of necessary connection needed for something to be rationally cognizable from its ground.

Unfortunately, ascertaining Leibniz's response to the dilemma proves difficult. Doing so would require further investigating his views on not only freedom, but also physical and mathematical necessity. Some commentators interpret Leibniz as taking the anti-logicist horn.[38] Others interpret him as taking the logicist horn.[39] In any case, Leibniz's immediate German rationalist successors evidently found no comfort in his response. For as we will now see, two of his

[38] Fisher (2011) and Jorati (2017, 127) argue for this view vis-à-vis causal necessities; Rutherford (2022) argues for it vis-à-vis geometric necessities. For a more general defense of the anti-logicist interpretation, see Wilson (1969).
[39] Lin (2014) argues for the logicist view vis-à-vis causal necessities. For a more global defense of the logicist interpretation, see Couturat (1972) and Hogan (2013).

most influential successors, Christian Wolff and Christian Crusius, innovate by embracing opposing horns of the dilemma. Troubles await both horns.[40]

III. Embracing the First Horn: Wolff's Logicist Rationalism

Upon Leibniz's death, the prolific Christian Wolff became the foremost philosopher in eighteenth-century Germany.[41] The traditional Anglophone view takes Wolff to offer a reverential (if philosophically suspect) systematization of Leibniz's philosophy.[42] When it comes to their accounts of rational cognition, their views indeed overlap in key respects. Like Leibniz in the *New Essays*, Wolff enshrines the principle of rational cognition into the very definition of ground: "By *a sufficient ground* we understand that from whence it is intelligible [*unde intelligitur*] *why* something is." (*Ontologia* §56). Wolff likewise holds that the possibility of rational cognition from grounds requires grounds to necessitate their consequences, per the necessitation backing principle. As he suggests regarding occurrences in the world: "If the occurrences in the world are certain [*gewiß*], then it is not possible that they should not occur [*kommen solten*]." (*Deutsche Metaphysik* §562).[43] The dilemma of rational cognition is therefore no less pressing for Wolff than it was for Leibniz.

Yet Wolff's rationalism famously takes a logicist turn—the principle of non-contradiction is elevated to the sole highest principle of metaphysics (*Ontologia* §27-55). He accordingly claims that the PSR is not an axiom, but a theorem derivable from the principle of non-contradiction (*Ontologia* §70).[44] As for the possibility of rational cognition from grounds, his logicism holds that rational

[40] The following discussion nonetheless has implications for understanding Leibniz's position. If he takes the logicist horn, he must face the challenges raised in section IV. If he takes the anti-logicist horn, he must face the challenges raised in section V.
[41] Wolff's followers included Alexander Baumgarten, Johann Christoph Gottsched, and Georg Friedrich Meier. See Cassirer (1907), Wundt (1945), Beck (1969), and Watkins (2005) for historiographical background.
[42] For two articulations of the traditional Anglophone view, see Bennett (1966) and Beck (1969).
[43] Cf. *Ontologia* §116-7, §297-8, and *Cosmologia* §108.
[44] For discussion, see Cassirer (1907), Heimsoeth (1926), Wundt (1945), Tonelli (1959), Beck (1969), Watkins (2005), Hogan (2013), Fugate (2014), and Anderson (2015).

cognition from grounds is possible only if (and because) grounds *logically* necessitate their consequences. More formally:

> **Logicist Backing Principle:** entity β is rationally cognizable from its ground α only if (and because) α logically necessitates β.[45]

Wolff thereby embraces the logicist horn of the dilemma of rational cognition. The success of Wolff's embrace of the logicist horn therefore stands or falls with the success of his derivation of this principle. Unfortunately, his derivation has gone largely neglected.[46]

My guiding thread is that Wolff's derivation rests upon his (oft underappreciated) cognitive turn in philosophy, which accompanies his (oft criticized) logicist turn. *Pace* the traditional Anglophone narrative, Wolff does not blindly ("dogmatically") pursue metaphysics at the cost of investigating how metaphysical cognition is possible at all. To the contrary, that is precisely his accusation against his metaphysically inclined predecessors! For instance, he accuses Descartes and Spinoza of failing to distinguish reason's ("the intellect") contribution to cognition from that of the senses and the imagination (*Theologia Naturalis II* §688). By appealing to what appeared "clear and distinct" to them without adequately grasping what is required for clear and distinct cognition, they were prone to deriving spurious metaphysical conclusions.[47] To avoid this predicament, Wolff's cognitive turn undertakes (i) a systematic analysis of the faculties of the mind (imagination, reason, etc.) and (ii) the conditions under which cognition is possible in light of them. I will accordingly

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[45] Like Leibniz, Wolff construes logical necessitation in terms of contradiction; α logically necessitates β if the combination of α and ~β entail a contradiction (*Ontologia* §279).

[46] Despite endorsing both the logicist backing principle and a derivation of the PSR from logical truths alone, Wolff aspires to avoid the absolute necessitarian conclusion that *everything is logically necessitated*. See, for instance, *Theologia Naturalis II* §355, §528-78, and §671-716. I leave this challenge for discussion elsewhere. In any case, this challenge is downstream from the present task of reconstructing how Wolff derives the logicist backing principle in the first place.

[47] To mention just one example, Wolff accuses Spinoza of conflating a mathematical notion of infinity (stemming from the imagination) with a metaphysical notion of infinity (stemming from reason). Spinoza is subsequently misled into attributing the mathematical notion of infinity to God (*Theologia Naturalis II* §688-91).

show how Wolff derives the logicist backing principle from his analysis of reason in the following two steps.[48]

As for the first step, Wolff broadly divides cognition into *a posteriori* cognition and *a priori* cognition. Whereas *a posteriori* cognition is wrought from experience, *a priori* cognition is wrought through reason: "What we adduce from experience is said to be cognized *a posteriori*. What becomes known [*innotescit*] truly to our reasonings is said to be cognized *a priori*. *Mixed* is cognition that is acquired partly *a posteriori*, partly *a priori*." (*Psychologia Empirica* §434).[49] Wolff proceeds to offer the following analysis of reason:

> *Reason* [*Ratio*] is the faculty of considering [*intuendi*] or perceiving the connection of universal truths. *Leibniz* in discussing conforming to reason and faith in the *Theodicy* (from premise §23) defines *reason* by chains of truth. […] Leibniz's definition therefore differs from ours insofar as he would not consider reason for [*pro*] a faculty of the soul, but for the object towards which the intellect turns. (*Psychologia Empirica* §483).

Wolff takes his characterization of reason to depart from Leibniz's. Wolff references Leibniz's *Theodicy* (§23), which characterizes reason as "the inviolable chaining of truths [*l'enchainement inviolable des verités*]." This is to define reason in terms of its object ("the object towards which the intellect turns"). By contrast, Wolff defines reason here as a *faculty* of the soul. A faculty (by definition) contains powers for certain kinds of activity (*Psychologia Empirica* §29).[50]

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[48] I am far from the first to identify Wolff's cognitive turn. Important works here include Campo (1939), École (1979), Cataldi (2001), Kreimendahl (2007), Dyck (2014), Vanzo (2015), Gava (2018), and Dunlop (2019). But as far as I can tell, none have shown how Wolff derives the logicist backing principle from his analysis of reason.

[49] Cf. *Disc. Praelim.* §3-12. For discussion of the crucial role of *a posteriori* cognition in Wolff—including its role in providing the data from which rational cognition of existing objects proceeds—see the works cited in the previous footnote.

[50] Strictly speaking, an infinite intellect (such as God's) would not have any cognitive faculties at all, since it contains no (mere) potentiality, but rather is purely actual. As Wolff says: "in God, no faculty of cognizing is given, but his intellect is pure act." (*Theologia Naturalis* §163). Since only finite intellects can possess a cognitive faculty, only finite intellects can possess a faculty of reason. By extension, the form and extent of rational cognition will differ between finite and infinite intellects in fundamental ways (*Theologia Naturalis* §170-2). The logicist backing principle should accordingly be understood as concerning rational cognition possible for finite reasoners—I leave God for discussion elsewhere. Though for discussion of God's cognition of connections of grounding, see *Theologia Naturalis* §257-289. Wolff may be overstating his differences with Leibniz above, insofar as Leibniz characterizes reason as a faculty elsewhere, e.g. in the *New Essays* (A VI, 6, 425).

By its very essence, the faculty of reason has the power to grasp connections among universal truths. This claim has two dimensions. First, reason grasps connections among truths by employing rules of inference (*Psychologia Empirica* §482-3). For instance, from the cognitions *all Fs are Gs* and *all Gs are Hs*, reason can inferentially cognize *all Fs are Hs*. Second, reason's cognition runs through (or proceeds from) cognition of universal truths. A universal truth (e.g. *all Fs are Gs*) does not immediately refer to singular objects, but rather to *all* objects of a certain kind ("all *Fs*"). A universal truth thereby differs from both particular truths (e.g. *some Fs are Gs*) and singular truths (e.g. *x is F*) (*Logica* §513). So insofar as reason can cognize any singular truths or connections among them, its cognition of them must run through cognition of universal truths.

Since rational cognitions run through inferences from universal truths (per Wolff's analysis of reason), rationally cognizing something from its ground requires inferring it by means of a universal truth that expresses its connection to its ground. Such universal truths are provided by *rules* or *laws*; a *rule* is defined as expressing the connection between something and its ground (*Ontologia* §475 and §866). So, for instance, a rule of Euclidean geometry might express how the number of the angles of a geometric figure is grounded in the number of its sides (*Ontologia* §56). Likewise, a law of physics might express how the motions of a body is causally grounded in the exertion of attractive and repulsive causal forces (*Cosmologia* §197). To illustrate how this can yield rational cognition from grounds, consider the singular truth that *this water bottle will fall to the floor*. By inferring this occurrence from cognition of Newton's law of universal gravitation and prior states of the world, the physicist can rationally cognize not merely *that* it occurs, but *why* it occurs (*Psychologia Empirica* §499). Similarly, by inferring the magnitude of composite entities in space from the magnitude of their parts via laws of composition, the metaphysician can rationally cognize not merely *that* composite entities are possible, but *why* they are possible (*Ontologia* §628).

Since rational cognition from grounds must run through cognition of universal truths, the possibility of rational cognition from grounds turns on how cognition of universal truths is possible. This brings us to the second stage of Wolff's derivation of the logicist backing principle: under what conditions is cognition of a universal truth possible? The answer lies in Wolff's *Logica*; logic (according to Wolff's definition) explicates those concepts and conditions under which our cognitive faculties can attain cognition (*Disc. Praelim.* §61).[51]

His logic offers the following definition of truth:

> *Truth is the determinability of a predicate by the notion of a subject.* A true affirmative universal proposition is when the predicate can be determined by the notion of the subject, posited absolutely or from a certain mode of determination. An affirmative particular proposition is true, when it is contained under a true universal proposition [*sub universaliter vera*] (§510), and therefore again when the predicate is determinable by the notion of the subject (§509). Finally, a singular proposition is true when the predicate is determined by that which belongs to the notion of an individual considered in a given case. (*Logica* §513).

Truth—at least insofar as it is cognizable by us—consists in the determinability of a predicate by the notion of a subject. A predicate is determinable by the notion of a subject, in turn, when the notion of the subject contains the predicate as part of its identity. Since the parts of the subject are constitutive of its identity, it would violate the principle of non-contradiction for it to be missing any of them. So insofar as a truth involves the determinability of its predicate by the notion of its subject, it holds on pain of contradiction—and thus is logically necessary.[52]

Universal truths cognizable by us are *a fortiori* logically necessary. For affirmative universal truths (of the form *all Fs are Gs*), the predicate is "posited absolutely or from a certain mode of determination." When a predicate is "posited absolutely," it follows from analysis of the subject

[51] As Dunlop (2019) notes, Wolff's definition of logic—in terms of conditions on cognition, rather than conditions on devising a deductive system or semantics—reflects earlier definitions of logic in early modern philosophy.
[52] Cf. *Logica* §392-4, §397, §516, and §523. As Anderson (2015) notes, Wolff rejects Leibniz's infinite analysis account of contingency—according to which instances of conceptual containment involving infinite analysis are not necessary (*Ontologia* §294-327).

without any background assumptions. Schematically, if subject <F> is analyzable into <G> as one of its constituent parts, the universal truth that *all Fs are Gs* follows on pain of contradiction. Such universal truths are *ipso facto* absolutely necessary (*Ontologia* §302). By contrast, when a predicate is posited "from a certain mode of determination," it follows from analysis of the subject taken together with the requisite background hypotheses ("from a certain mode of determination"). Such universal truths are *ipso facto* hypothetically necessary. Schematically, if subject <F> plus the requisite background conditions <H> are analyzable into <G>, the universal truth *all Fs are Gs* follows on pain of contradiction. Thus, unlike Leibniz, Wolff unequivocally maintains that what is hypothetically necessitated follows from what necessitates it on pain of contradiction. As he puts it elsewhere: "what is hypothetically necessary is that whose opposite does not involve a contradiction except under a certain hypothesis" (*Ontologia* §318). For instance, once empirical background conditions are supposed, even universal truths expressing empirical causal laws follow on pain of contradiction.[53] Thus, since all universal truths cognizable by us are either absolutely or hypothetically necessary and since absolute and hypothetical necessities alike are logically necessary, all universal truths cognizable by us are logically necessary (*Logica* §520-48).

Thus, since (i) Wolff's analysis of reason implies that all rational cognition runs through cognition of universal truths and (ii) his analysis of truth implies that all universal truths cognizable by us are logical truths, it follows that all rational cognition runs through logical truths. *A fortiori*, all rational cognition from grounds runs through logical truths. Since such logical truths represent connections of grounding as logically necessary, it follows that rational cognition from grounds is

[53] Cf. *Logica* §213-31. For further discussion of Wolff's derivation of empirical causal laws, see van den Berg (2011), Anderson (2015), Gava (2018), and Dunlop (2019). In any case, it is misleading to suggest (as Vanzo 2015 does) that because causal laws presuppose empirical background conditions, they do not express necessary connections. These laws indeed do not express absolutely necessary connections (§527 *Cosmologia*), but they do express hypothetically necessary ones (*Cosmologia* §102-18).

possibly only insofar as grounds stand in *logically* necessary connections to their consequences—precisely as the logicist backing principle says.

So precisely as we set out to show, Wolff's derivation of the logicist backing principle rests upon his cognitive turn in philosophy. Since rational cognition from grounds *ex hypothesi* runs through logically necessary universal truths, it must be wrought through rigorously deriving universal truths via logical analysis. The adequacy of Wolff's embrace of the logicist horn accordingly turns on the derivability of universal truths via logical analysis across all domains of rational cognition—mathematics, physics, philosophy, etc. Wolff ambitiously undertakes such analysis.

Yet on first approach, it may not seem that all universal truths are derivable via logical analysis. For instance, it may seem that physical laws do not hold on pain of contradiction. No matter how much analysis is undertaken, it may seem that the true physical laws are not derivable by logical analysis of their constituent concepts (of <force>, <mass>, etc.). But on Wolff's view, this objection is too quick. Such seemings merely reflect our own psychological limitations (as finite rational beings) to execute the requisite logical analyses. As Wolff warns, "if we are unable to conceive [*begreifen*] or intelligibly explain it [the effect of something—JS], nothing more follows from this than that we do not understand it, and therefore nothing more than that we are guilty for our ignorance [*Unwissenheit*]." (*Deutsche Metaphysik* §129).[54] Since Wolff's logicist project is committed to merely the *in principle* possibility of the requisite logical analyses, practical limitations encountered in executing the project pose no irresolvable challenge to it.

A more incisive criticism is that Wolff's own formal framework of conceptual containment relations is too impoverished to logically derive all universal truths (even in principle). His framework faces acute limitations in capturing the grounds of hypothetical truths, disjunctive truths,

[54] Cf. *Ontologia* §834.

many-place relations, etc.[55] But even if this criticism were decisive against Wolff's execution of the logicist project, it might not be decisive against the logicist project as such. Later logicist projects—employing post-eighteenth-century innovations in formal logic—do not face the same expressive limitations.[56] So all else being equal, a criticism of Wolff's logicist project would be more incisive if it did not simply focus upon the formal limitations of Wolff's logic. And as we shall now see, Wolff's acute philosophical rival, Christian Crusius, offers such criticisms. So even in light of post-eighteenth-century developments in logic, Crusius' criticisms remain of historical and philosophical interest.

IV. Embracing the Second Horn: Crusius' Anti-Logicist Rationalism

Crusius hails from the pietist tradition, which forcefully opposed Wolff and his followers in eighteenth-century Germany.[57] The pietists championed a libertarian account of freedom. On this account, free actions are not necessitated by their grounds. Since rational cognition from grounds requires necessitation (per the necessitation backing principle) and since free actions are not necessitated by their grounds on the libertarian account of freedom, Crusius concludes that free actions are not rationally cognizable from their grounds. He thereby rejects an unrestricted principle of rational cognition; it is not the case that everything is rationally cognizable from its ground. In this respect, Crusius downsizes rationalist paradise. This story has been told by others.[58]

Nonetheless, Crusius retains the principle of rational cognition for all other grounds, which do necessitate their consequences. As he puts it: "Everything that is not a fundamental activity of

[55] For this line of criticism, see Friedman (1992) and Anderson (2015). Wolff himself is not oblivious to at least some of these difficulties (*Logica* §415).
[56] See, for instance, the essays on (neo-)logicist metaphysics and philosophy of mathematics in the anthology *Metametaphysics* (2009).
[57] Other important Pietist philosophers include Christian Thomasius, Andreas Rüdiger, Adolph Friedrich Hoffmann, and Johann Lange. I focus on Crusius here because of both his philosophical depth and his influence on Kant. For relevant historical background, see Cassirer (1907), Wundt (1945), Beck (1969), Watkins (2005), and Dyck and Sassen (2021).
[58] For discussion, see Cassirer (1907), Heimsoeth (1926), and Hogan (2009).

freedom has, when it arises [*wenn es entsteht*], such a real ground […] from which it can be understood why it is (rather than is not) and why it is so (rather than otherwise)." (*Entwurf* §87).[59] The dilemma of rational cognition is therefore no less pressing for him. As others have noted, he embraces the dilemma's second, anti-logicist horn. He not only holds that some grounds non-logically necessitate their consequences, but also introduces non-logical principles that enable rational cognition of these connections.[60] Unfortunately, gone largely neglected is his innovative argument for anti-logicist rationalism (presented at *Weg* §255-62). I will now make up for this lacuna by showing how Crusius turns Wolff's cognitive turn on its head: Crusius pays for rational cognition of non-logically necessary connections in the coin of expanding the faculty of reason's core cognitive powers. In the first step of his argument, he specifies a certain kind of *non-logically* necessary connection. In the second step, he proposes that reason's power of thinking track this kind of connection. This culminates in his introduction of axiomatic, non-logical principles of reason that make possible rational cognition from (non-logical) grounds.

As for the first step, Crusius identifies a source of *non-logically* necessary connections by focusing on the space of concepts prior to any application of the principle of contradiction. As he puts it: "The principle of contradiction already presupposes certain concepts, which already have their constitution, and to which one applies it." (*Weg* §258). Since logically necessary connections are derived by applying the principle of non-contradiction in the logical analysis of concepts (as we saw in the previous section), its application rests upon a space of concepts that are analyzable into further parts. Crusius accordingly describes a *pre-logical space* (as we might call it) in which concepts

[59] Crusisus regards these metaphysical and cognitive roles as together definitional of (what he calls) *a priori* ideal grounds (*Entwurf* §87).
[60] Cf. Cassirer (1907, 521-557), Heimsoeth (1926, 206-28), Wundt (1945, 254-64), Tonelli (1959, 129), Beck (1969, 396), Watkins (2005), Hogan (2009), and Stang (2016).

cannot contradict either themselves or each other. Concepts within this pre-logical space would have the following two features.

First, concepts within this pre-logical space would be simple. For a concept contradicts itself only if its constituent parts contradict each other. For instance, the concept <non-colored green thing> is self-contradictory because its constituent parts <non-colored> and <green> contradict each other. Since a simple concept has no conceptual parts, it cannot contradict itself. Second, concepts within this pre-logical space would be positive, or unnegated. For a concept contradicts another concept only if one contains the negation of the other (e.g. <married> and <unmarried>). Since positive (simple) concepts have no negations, they cannot contradict each other. For instance, suppose <red> and <green> were each positive simple concepts. <red> therefore does not contain <not green> in itself and <green> does not contain <not red> in itself. The combination of <red> and <green> therefore could not generate a contradiction. As simple and positive, the concepts within this pre-logical space would be apt to express the real elements (or "matter") of possibility from which other possibilities are derived.[61]

Since positive simple concepts could not contradict themselves or each other, any necessary connections among them could not hold on pain of contradiction ("hidden" or otherwise). This yields the first step of Crusius' argument for his anti-logicist rationalism: any necessary connections among positive simple concepts would have to be *non-logically* necessary. Thus, if any of these necessary connections are rationally cognizable, it would undermine logicist rationalism's core claim that all rationally cognizable connections are logically necessary. Now for his part, Wolff would accept (at least the coherency of) positive simple concepts that constitute the basic data of

[61] Whether a concept is positive in this metaphysical sense is not always tracked syntactically, i.e. by the logical negation *not*. For instance, despite lacking any logical negation, *darkness* is a real negation of *light*; the possibility of *darkness* is derived as a privation of the possibility of *light*. So the concept <darkness> would not be among the positive simple concepts within the pre-logical space of possibility. Cf. *Entwurf* §26 and *Weg* §183.

possibility.[62] Yet he denies that these concepts or any non-logical connections among them would be rationally cognizable to us.[63] This brings us to the second step of Crusius' argument for his anti-logicist rationalism: he undertakes a twofold expansion of our cognitive powers that makes possible rational cognition of not only (i) (positive) simple concepts themselves, but also (ii) necessary connections among them.[64]

As for the simple concepts themselves, Crusius asserts that without proving their possibility (i.e. that they are satisfiable among objects), all cognitive purchase on objects would be lost. As he puts it: "Now it is still to be shown how one should prove [*erweisen soll*] the first concepts, without whose proof the reality of which would fall away, and our entire cognition would be a mere figment of the mind [*Hirngespinste*], that is, a series of hypothetical consequences, of which all together we would not know in the end, whether or not they would have a real object [*reales Object*] outside of thought." (*Weg* §492). He discusses various strategies for pursuing this kind of proof, and thus for cognizing simple concepts (*Weg* §482-92). Simple concepts provable in this way end up including (among others) <temporal succession>, <causation>, <spatial externality>, <identity>, and <a thing in general> (*Weg* §189).[65]

As for the (non-logically) necessary connections among these simple concepts, Crusius begins by affirming human reason's power to think concepts together (*Weg* §255). His key expansion of reason's cognitive powers lies in the further claims that, even in the absence of any contradiction, (i) what is thinkable to reason tracks what is possible in reality and (ii) what is unthinkable to reason

[62] Though see Lenders (1971).
[63] Cf. *Deutsche Logik* §18 and *Theologia Naturalis* §454-62.
[64] As far as I can tell, Cassirer (1907, 531-2 and 555-7) and Heimsoeth (1926, 213-8) come closest to reconstructing Crusius' argument against logicist rationalism—but they fail to clarify this key expansion.
[65] Cf. *Entwurf* §102 and *Weg* §187-8. Although the claims in this paragraph are worthy of further scrutiny, I must leave them for discussion elsewhere.

tracks what is impossible in reality.[66] These two claims are codified in Crusius' introduction of the following two highest (or axiomatic) non-logical principles of reason. The first is *the principle of non-combinability*, which says that what cannot be combined in thought cannot exist together. The second is *the principle of inseparability*, which says that what cannot be separated in thought cannot exist separately. As he describes them:

> What cannot be separated in thought, cannot be separated in fact; and what cannot be combined in one concept in thought also cannot be combined in fact, regardless of the fact that no contradiction could be derived from the concepts; rather only a physical necessity to think the thing, distinctly, and is sensed according to a comparison of all circumstances with one another. (*Weg* §261).

So whereas the principle of non-contradiction alone constitutes the highest principle of Wolff's philosophical system, Crusius regards the principles of non-contradiction, non-combinability, and inseparability as jointly constituting the three highest principles of reason [*die drei Grundsätze der Vernunft*] (*Weg* §262).

When applied to simple concepts, these two highest non-logical principles yield derivative principles. On the one hand, certain simple concepts cannot be thought separately, even though no contradiction results from their separation. For instance, Crusius has us suppose that thing A does not exist at time t_1 but starts to exist at a subsequent time t_2. He claims that it is unthinkable that thing A lacks a cause of its existence: if "someone said that thing A is generated without a cause, he would say something absurd [*ungereimtes*], but nothing contradictory." (*Weg* §260). The unthinkability of A's lacking a cause cannot stem from a contradiction, since the concepts involved here (of causation, temporal succession, a thing, etc.) are each simple. So given Crusius' principle of inseparability, the derivative principle follows that *anything coming into existence must have a cause*. On the other hand, certain simple concepts cannot be thought together, even though no contradiction

[66] Care must be taken to avoid confusing what is unthinkable *given our psychological limitations* with what is unthinkable *in principle* (*Entwurf* §58). Crusius offers various maxims for avoiding such confusion. I will leave the *in principle* qualification implicit below.

results from their combination. For instance, <red> and <green> cannot be thought together in a single point of a body at the same time. So given Crusius' principle of non-inseparability, the derivative principle follows that "A single point of a body cannot be simultaneously red and green." (*Weg* §259). Since these derivative principles stem from the application of Crusius' two highest non-logical principles to simple concepts, they are prior to any application of the principle of non-contradiction. These derivative principles are therefore *non-logically* necessary. As Crusius puts it: "For we are talking now of principles that are not identical to the principle of contradiction, but rather deliver the first material on which it can be applied." (*Weg* §261).

These two highest non-logical principles and the principles derived from them make possible rational cognition from (non-logical) grounds. Specifically, given that the negation of something is unthinkable (but not contradictory) conditional on its sufficient ground, the principle of inseparability entails that its ground non-logically necessitates it. So from cognition of the unthinkability of ~β conditional on α, reason can inferentially cognize β from α via the application of the principle of inseparability. For instance, if we had adequate cognition of a particular sufficient cause, the negation of its effect would be unthinkable, albeit not contradictory (*Entwurf* §72, §87). The principle of inseparability would therefore entail that this effect is non-logically necessitated by its cause.

Thus, as Crusius sees it, the fatal flaw in Wolff's logicist rationalism lies in its restriction of reason's cognitive powers to the logical. This leaves reason unable to cognize any connections among simple concepts. Crusius overcomes this limitation by affirming reason's power to cognize connections in accordance with what is thinkable or unthinkable to it, even in the absence of contradiction. This power underlies his two highest non-logical principles (viz. the principle of inseparability and non-combinability). When applied to simple concepts, these principles yield cognition of derivative non-logical principles—which, in turn, enable rational cognition from non-

logical grounds. Yet as we will now see, Crusius' expansive attitude towards reason's cognitive powers proves no less problematic than Wolff's restrictive attitude.

V. Trouble for the Second Horn: Crusius' Paradox

Underlying Crusius' two highest non-logical principles is the intellectualist presupposition that the order of thinkability tracks the order of non-logical possibility. This presupposition is still advanced (in some form) by certain contemporary philosophers.[67] But it demands scrutiny. Echoing others, Hogan (2009) describes Crusius' defense of this presupposition as "highly dogmatic" (364).[68] This description may well be accurate. Yet I will now argue that Crusius' troubles run far deeper: given certain background assumptions, this presupposition does not satisfy the principle of rational cognition. This means that the very basis of Crusius' anti-logicist rationalism is plagued by inconsistency—a predicament I will call *Crusius' paradox*. So even if Crusius is correct about the need for non-logically necessary connections (*pace* Wolff's logicist rationalism), this paradox would entail that his anti-logicist rationalism cannot provide an adequate response to the dilemma of rational cognition.

In more detail, Crusius' paradox arises from the conjunction of the following three claims. The first is the principle of rational cognition itself, which (as we saw above) Crusius endorses for everything but free actions:

(1) Principle of Rational Cognition: entity α is a sufficient ground of entity β only if β is rationally cognizable from α [where β is any entity save for a free action].

So insofar as *the very fact that β is thinkable* has a ground, the principle of rational cognition implies that it must be rationally cognizable from its ground.

[67] Among many others, see Bealer (2002) and Chalmers (2012).
[68] Cf. Beck (1969), Watkins (2005), and Stang (2016). Though see Heimsoeth (1926, 174-85) for a more sympathetic take.

The second commitment is (what I will call) *modal non-idealism*: the order of thinkability merely tracks the order of possibility; something's being thinkable does not make it possible. In Crusius' terminology, thinkability is an *indicator* [*Kennzeichen*] of possibility, but thinkability is not the *essence* [*Wesen*] of possibility (*Entwurf* §56). Rather, something satisfies the indicator of possibility *because* it satisfies the essence of possibility.[69] A bit more formally:

(2) Modal non-idealism: the indicator of possibility (viz. *thinkability*) is grounded in the (non-ideal) essence of possibility.

Since possibility and necessity are interdefinable (α is necessary iff ~α is not possible), a corollary of modal non-idealism is that the indicator of necessity (viz. *that whose negation is unthinkable*) is grounded in the essence of necessity.

Because modal non-idealism expresses a grounding claim, the principle of rational cognition must apply to it. This implies that the indicator of possibility must be rationally cognizable from the essence of possibility. Since *thinkability* is the indicator of possibility on Crusius' view, then merely by cognizing that some entity α satisfies the essence of possibility, it must be (in principle) thereby possible to cognize that α is thinkable. *Mutatis mutandis* for necessity; merely by cognizing that α satisfies the essence of necessity, it must be possible to cognize that ~α is unthinkable.

The question becomes whether this implication is sustainable—whether the indicator of possibility (viz. thinkability) is in fact cognizable from its essence. To answer this question, we must first specify the essence of possibility, which would provide the ground of why some entity α is thinkable.[70] Crusius clarifies this essence as follows:

> Because it depends on whether no thought remains left because of a generated contradiction or only otherwise, the two kinds of unthinkability are not the same kind

[69] Cf. *Entwurf* §56-8 and *Weg* §264. This point is noted by Heimsoeth (1926, 219-20).
[70] Note that the question at issue here concerns the ground of the thinkability of the *object* that is thought (=α)—not the *vehicle* of thinking that object (=the thought of α). The ground of the latter would presumably instead hinge on some story about the representational capacities of the thinking agent in question.

> of effect [*nicht von einerley Effecte sind*]: the reliability with which we can know whether something is impossible hinges on different materials [*verschiedene Stuffen*]. (*Entwurf* §58).

Crusius first suggests that since the unthinkability of entity α can result in two fundamentally different ways—from a logical ground ("because of a generated contradiction") or from a non-logical ground ("only otherwise")—the corresponding essence of (im)possibility must be bifurcated. The essence of *logical* impossibility consists in *that which entails a contradiction*. So like Wolff, Crusius holds that α is unthinkable if (and because) α entails a contradiction. For instance, because *being an unmarried bachelor* entails a contradiction, it is unthinkable.

But now consider the essence of *non-logical* (im)possibility. Crusius cashes out this essence in terms of causal powers. That is, entity α is non-logically possible if (and because) some being has the causal power to bring about α. As Crusius clarifies:

> For *that something is thinkable* constitutes not the essence of possibility, but only the ground of cognizing it. The essence of possibility consists in an existing cause being available [*vorhanden*] for it. Thus, everything that does not contain a contradiction in itself is possible, because at least God is a sufficient ground available for each one of their kind [*zu allem dergleichen*]. (*Weg* §137).[71]

For instance, unicorns are non-logically possible if (and because) something has the causal power to bring unicorns into existence. Likewise, if it is not within the causal power of some being to bring about ~α (yet no contradiction would result from ~α), α is non-logically necessary. This point extends to non-logical necessitation: if it is not within the causal power of some being to bring about ~β conditional on α, α non-logically necessitates β. For instance, the parts of my water bottle non-logically necessitate the existence of the water bottle itself if (and because) nothing (not even God) has the causal power to bring the parts into existence without thereby bringing the water bottle into existence.[72] Combined with the principle of rational cognition, Crusius' causal characterization of the

[71] Cf. *Entwurf* §56 and §121.

[72] This is not an unfamiliar conception of non-logical necessitation. It is sometimes claimed that the grounded is necessitated by its ground if the ground is "all God would need" to create in order to create the grounded. Cf. Schaffer (2009).

essence of non-logical possibility implies that the fact that entity α is thinkable is rationally cognizable from its ground in the fact that some being has the causal power to bring about α. Likewise, the fact that entity α is unthinkable is rationally cognizable from the fact that no being (God or otherwise) has the causal power to bring about α.

This brings us to the third (and final) supposition generating the paradox: there is a *cognitive gap* between the essence of non-logical possibility (so construed) and its indicator. That is, there is at least one entity α such that even if ~α is cognized as satisfying the essence of non-logical possibility (i.e. nothing has the causal power to bring about α), α still remains thinkable. In other words, the thought of ~α remains open even after cognizing that nothing has the causal power to bring about α. Stated more formally:

(3) Cognitive Gap: The indicator of non-logical possibility (viz. *thinkability*) is not rationally cognizable from the non-ideal essence of non-logical possibility (viz. *causal power*). [*mutatis mutandis* for non-logical necessity]

For a tentative example of this gap, consider *a maximally large rock*. Given Crusius' causal characterization of the essence of non-logical possibility, a maximally large rock presumably satisfies the essence of non-logical possibility. That is, God has the power to create a maximally large rock—a larger one would be non-logically impossible. Nonetheless, a large rock still seems thinkable—for any rock, we can think of a slightly larger one. If this is correct, a maximally large rock satisfies the essence of non-logical possibility, but not its indicator. Now this example is not obviously a bona fide example of the gap. To wit, one might argue that God lacks the power to create a maximally large rock, after all. Or one might argue that we (under ideal conditions) or God cannot really think of a larger rock, after all. This example merely serves to illustrate how the essence of non-logical possibility *might* come apart from its indicator. The question for the opponent of Cognitive Gap is

not whether there are bona fide examples of this gap, but rather why there could be no such gap between the indicator of non-logical possibility and its essence, after all.

Yet accepting Cognitive Gap generates paradox: it is inconsistent with the principle of rational cognition and modal non-idealism. For the latter two principles jointly entail that the indicator of non-logical possibility is rationally cognizable from the essence of non-logical possibility. In effect, if Crusius were forced to accept Cognitive Gap, his anti-logicist rationalism would violate the principle of rational cognition at its very foundation. Hence Crusius' paradox. If it holds up, this paradox would undermine his anti-logicist rationalism.[73]

How, then, might Crusius resolve the paradox, and thus save his anti-logicist rationalism? I propose that he would reject Cognitive Gap. The basis for his rejection comes back to the guiding thread of his anti-logicist rationalism: the idea that the faculty of reason's power of thinking tracks the order of (non-logical) possibility. He claims that this power (properly exercised) does not track the order of possibility merely as a rule of thumb, but rather perfectly (i.e. without exception). This claim must be assumed, he says, because our reason contains *a drive towards truth*. As he explains:

> §256 One accordingly considers further that in our soul is a natural drive towards perfection [*Vollkommenheitstrieb*]. Out of this becomes [*wird*], as soon as the intellect attains a lively effect, the drive towards truth [*Wahrheitstrieb*], *Telematology* §117. It is therefore essential to our soul to follow the intellect insofar as the concepts are distinct [*deutlich*] enough. It is therefore essential to us to assume [*anzunehmen*] the essential constitution of our way of thinking [*Denkungsart*] also as the indicator of the truth, and to judge according to this what should be assumed within the concept as true or false. Against this natural disposition the freedom of the will is not at all capable, even only [*ohne nur*] indirectly, Telematology §55-6. From this is generated accordingly the very highest [*allerhöchste*] ground of our inferences, viz. that *that which we cannot think other than as true* is true, and *that which we cannot think at all or think other than as false* is false.

Reason's natural drive towards truth renders it necessary for us to assume that reason's power of thinking perfectly tracks the essence of possibility ("insofar as the concepts are distinct enough"). It

[73] Heimsoeth (1926, 220) appears to suggest in passing that Crusius has no basis for avoiding Cognitive Gap. Nonetheless, he does not clarify that Cognitive Gap conflicts with Crusius' other commitments, and thus how it gives rise to paradox. Nor does Heimsoeth elucidate how Crusius might resist Cognitive Gap.

simply lies beyond our powers to assume that reason's power of thinking does not track the essence of possibility ("Against this natural disposition the freedom of the will is not at all capable"). By extension, it is necessary for us to assume that Crusius' two highest non-logical principles ("the very highest ground of our inferences") really express the connection between the essence and indicator of non-logical possibility.

For the sake of argument, let's grant Crusius' claim that our reason has a natural drive towards truth (so construed), and consequently that its power of thinking tracks the essence of non-logical possibility. Let's even grant Crusius' theological foundation for this natural drive—that God, out of his benevolence, has implanted this natural drive towards truth in us.[74] Would the natural drive towards truth then allow Cognitive Gap to be overcome? To answer this question, we must heed what Cognitive Gap is challenging about the connection between the indicator of non-logical possibility and its essence. First, there is the *genetic* question: why does what is thinkable *to us* track non-logical possibility? The weight of the genetic question falls on why *we*—as finite rational beings—track the essence of non-logical possibility (rather than fail to track it). A natural drive towards truth, if it really held, would indeed help answer the genetic question.

But Cognitive Gap does not concern this genetic question. Rather, Cognitive Gap concerns the *constitutive* question: why does *what is thinkable* track the essence of non-logical possibility? The weight of the constitutive question falls on why non-logical possibility is indicated by *what is thinkable* (rather than some other kind of representational state or no representational state at all). Yet even if a natural drive towards truth were posited, it would not help to answer the constitutive question. To say that we track the essence of non-logical possibility through what is thinkable to us due to a natural drive towards truth *presupposes* that what is thinkable tracks the essence of non-logical possibility; it does not *explain why* what is thinkable tracks the essence of non-logical possibility. In

[74] Cf. *Entwurf* §322 and *Weg* §431-2.

other words, a natural drive towards truth would not explain why the essence of non-logical possibility in causal powers manifests itself in *what is thinkable* (rather than some other kind of representation, or no representation at all). Thus, positing a natural drive towards truth in us fails to overcome Cognitive Gap.

Mutatis mutandis for divine omniscience. Divine omniscience plays an analogous role for God as the natural drive towards truth does for us. Just as what is thinkable *to us* tracks the essence of non-logical possibility due to our natural drive towards truth, Crusius says that what is thinkable *to the divine intellect* tracks the essence of non-logical possibility due to divine omniscience (*Entwurf* §269). Divine omniscience thereby answers the *genetic* question: why does what is thinkable *to the divine intellect* track the essence of non-logical possibility? But divine omniscience likewise presupposes that thinkability tracks the essence of non-logical possibility; it does not *explain why* thinkability tracks the essence of non-logical possibility in the first place. Since divine omniscience fails to answer this question, it fails to overcome Cognitive Gap.

Nonetheless, one might insist that the divine intellect could help Crusius to overcome Cognitive Gap in a different way. The essence of the non-logical possibility of α, again, involves the fact that something has the causal power to bring about α. What, then, is the essence of something's having the causal power to bring about α? In the case of God, God's causal power to bring about α runs through God's will. To wit, God's will just is his power to actualize represented actions (*Weg* §275). Yet the representational activity that is inherent in God's will amounts to thinking. As Crusius clarifies a bit earlier: "The power to think is called the intellect [*Verstand*]. […] If it were posited that God had no understanding: then he also could not have a will, since the will presupposes the understanding." (*Weg* §269). Thus, on Crusius' view, God's thought of α is essential to God's causal power to bring about α.

Now one might infer from this Crusian construal of the divine intellect that the thinkability of α belongs to the very essence of something's having the causal power to bring about α. And if the thinkability of α belongs to the very essence of something's having the causal power to bring about α, the thinkability of α would be one part of the very essence of α's non-logical possibility. So, on this proposed solution, thinkability provides an indicator of non-logical possibility because thinkability is one part of the essence of non-logical possibility. No wonder the indicator and essence of non-logical possibility cannot come apart (*pace* Cognitive Gap).

Yet the problem with this proposed solution lies in its penultimate inference: the mere fact that *God's* thought of α belongs to the very essence of God's causal power to bring about α does not imply that God's thought of α belongs to the essence of *something's* having the causal power to bring about α. That is, it is not the fact that *God* has the causal power to bring about α that makes α possible, but rather the fact that *something* has the causal power to bring about α (*Entwurf* §56 *Weg* §137). Of course, it might turn out that God often (or even always) plays the role of this *something*. But the fact that *God* plays this role is not essential to the possibility of α as such; what matters is that *something* plays this role. Since it is *something's* having the causal power to bring about α that belongs to the essence of non-logical possibility of α, from the fact that God's causal power to bring about α presupposes God's thinking of α it cannot be inferred that God's thinking of α belongs to the essence of non-logical possibility of α. Thus, since the thinking of α still does not belong to the essence of non-logical possibility of α, the proposed solution fails to overcome Cognitive Gap.

Let's take stock. Even if we grant Crusius' natural drive towards truth in us or the perfections of God, it is far from clear that these resources overcome Cognitive Gap. Perhaps there are other ways for him to overcome Cognitive Gap. Perhaps. Yet as long as Cognitive Gap remains, Crusius' paradox remains: his anti-logicist rationalism will violate the principle of rational cognition

at its very own foundation. The larger upshot, then, is that even if Crusius' argument against Wolff's logicist rationalism succeeds, his anti-logicist rationalist alternative remains on unstable ground.

VI. Conclusion: In Search of Lost Ground

Rationalism is at home in rationalist paradise: a conception of reality in which everything has a sufficient ground from which it can be rationally cognized. Unfortunately, by focusing on the threat of eviction from rationalist paradise that stems from challenges to the PSR, proponents of the prevailing view have neglected a more fundamental challenge. This challenge concerns the principle of rational cognition: how is rational cognition from grounds possible at all? As we have seen, the PSR is not an axiomatic principle for either Wolff or Crusius; the axiomatic principles in their respective philosophical systems instead purport to address this challenge. Despite their cognitive turn, the accompanying dilemma still threatens. Whereas Wolff's logicist rationalism struggles to reduce all necessary connections that are rationally cognizable to logically necessary connections, Crusius' anti-logicist rationalism struggles to establish cognitive purchase on non-logically necessary connections—a struggle accentuated by Crusius' paradox. Since the dilemma remains, so too does the threat of eviction from rationalist paradise facing eighteenth-century German rationalism.

Enter a young Immanuel Kant. Like Crusius, Kant rejects Wolff's logicist rationalism (*Negative Magnitudes*, AK 2:202-4).[75] Yet he finds Crusius' particular brand of anti-logicist rationalism unsatisfactory. He is left wondering:

> But what I should dearly like to have distinctly explained to me, however, is how one thing issues from another thing, though not by means of the law of identity […] As for this real ground and its relation to its consequence my question presents itself in the following simple form: How am I to understand the fact that, because something is, something else is? (AK 2:202 [~1763-4]).

[75] See Cassirer (1907), Heimsoeth (1926), Tonelli (1959), Watkins (2005), Hogan (2013), Anderson (2015), and Stang (2016) for discussion of Kant's rejection of logicist rationalism and Crusius' influence on him.

Kant's question ostensibly concerns the possibility of rational cognition from non-logical grounds; the young Kant reports that he has reflected "upon the nature of our cognition with respect to our judgment concerning grounds and consequences, and one day I shall present a detailed account of the fruits of my reflection" (AK 2:204).[76] So for the anti-logicist rationalist seeking to avoid eviction from rationalist paradise, how should Kant's question be answered? As we have seen, avoiding eviction requires avoiding Crusius' paradox. And avoiding the paradox would require rejecting one of the three commitments that generates it. Although this paradox has not been shown to be insurmountable, rejecting any of these three commitments faces potential challenges—or so I will now tentatively conclude.

The first option would be to deny Cognitive Gap: the indicator of non-logical possibility is rationally cognizable from its essence, after all. Nice work if you can get it. The above discussion illuminates some obstacles facing Crusius' ambitious attempt to develop this option. A second, more modest option would instead restrict the principle of rational cognition at its very foundation; it would concede that the indicator of non-logical possibility is not rationally cognizable from its ground in the essence of non-logical possibility. Although this modest response avoids Crusius' paradox, it places rationalist paradise upon a chimerical foundation. The rational cognizability of connections of grounding would be founded upon a brute, unintelligible connection between the indicator of non-logical possibility and its essence. No connection of grounding would be absolutely intelligible. Instead, connections of grounding would be merely hypothetically intelligible, i.e. on the hypothesis of an unintelligible connection between the essence of non-logical possibility and its indicator.

[76] Cf. *Inquiry* (especially AK 2:293-6). I surmise that Kant's dissatisfaction with Crusius is closely tied to Crusius' paradox, but I leave this for discussion elsewhere.

The difficulties facing these two options might lead the aspiring rationalist to the third option: deny modal non-idealism. This would amount to embracing a form of idealism, on which there is no real distinction between the essence of non-logical possibility and its indicator; they are the very same. What it is for a connection to be non-logically possibility *just is* for that connection to manifest itself in a certain way in our cognition. Since the essence and indicator of non-logical possibility are *ex hypothesi* the very same, the latter can be straightforwardly rationally cognized from the former. So no cognitive gap.

Kant himself arguably ends up developing the idealist option. As he already suggests in a pregnant *Reflexion* circa 1770: "It is difficult to represent how the consequence follows the ground [*nach dem Grunde sey*], if this relation is not merely a phenomenon." (AK 17:382—Reflexion 4001, my translation). Or as he later puts it in the first *Critique*:

> The proof ["in transcendental cognition"—JS] does not show, that is, that the given concept (e.g., of that which happens) leads directly to another concept (that of a cause), for such a transition would be a leap for which nothing could be held responsible; rather it shows that experience itself, hence the object of experience, would be impossible without such a connection. (A783/B811).

He suggests here that what it is for there to be a non-logically necessary connection among empirical objects just is for the absence of one to be inexperienceable on the supposition of the other (A217-8/B265-6.). Since the indicator of this kind of non-logical possibility (viz. experiencability) is identical to its essence, no cognitive gap between them arises. In this respect, Kant would extend the cognitive turn in metaphysics began by Wolff and Crusius, a turn prompted by the need to make sense of how rational cognition from grounds is possible.

Of course, idealism (so construed) is a radical philosophical doctrine. If idealism were truly the cost of securing the possibility of rational cognition involving non-logically necessary connections, one might wonder whether this is a mark for idealism or rather a mark against the possibility of such rational cognition. In any case, a more systematic assessment of the anti-logicist

rationalist's options will have to await another occasion. For now, where we end is proof of the beginning: the cost of sustaining the principle of rational cognition drives the threat of eviction from rationalist paradise facing eighteenth-century German rationalism. At base, this principle is a presupposition of the core rationalist claim that things hang together in an intelligible way; that every *Why?* Admits of an intelligible *Because*. Yet for a principle that promises intelligible answers, it certainly raises many questions.

Chapter 2

From Dogmatic Slumber to Rationalist Nightmares: Kant among the Dreamers of Reason

I. Introduction

The *Critique of Pure Reason* (1781) marks the culmination of Kant's awakening from his self-described "dogmatic slumber" (AK 4:260). But when did Kant awaken from his dogmatic slumber? And what constituted this awakening? The traditional narrative alleges that this break occurred in the decade leading up to the *Critique of Pure Reason* (1781); Kant awakens in the 1770's to Hume's challenges to our cognition of causal principles.[77] Yet by the mid-1760's, Kant had already accused two of his most influential eighteenth-century German rationalist predecessors—Christian Wolff (1679-1754) and Christian Crusius (1715-1775)—of dreaming worlds of their own:

> if we consider *those who build in air* their various worlds of thought [*Luftbaumeister der mancherlei Gedankenwelt*], each happily inhabiting his own world to the exclusion of the others—if we consider, for example, the person who dwells in the world known as *The Order of Things*, a world tinkered together by *Wolff* from a small quantity of building material derived from experience and a larger quantity of surreptitious concepts, or the person who inhabits the world which was conjured out of nothing by *Crusius* employing the magical power of a few formulae concerning *what can* and *what cannot be thought*—if we consider these people, we should be patient with their contradictory visions, until these gentlemen have finished dreaming their dreams. (Kant, *Dreams of a Spirit-Seer* 1766, AK 2:342—translation modified).

For Wolff and Crusius, reason seeks not merely cognition *that* but cognition *why*; it seeks to cognize things from their grounds. They construe rational cognition *from grounds* as a central aim of rationalist metaphysics. For instance, the metaphysician might seek to rationally cognize the existence of the world from its ultimate ground in God via the principle of sufficient reason. Rational cognition from grounds requires reason to employ general rules and principles to infer connections between a

[77] Proponents of the traditional narrative include (among many others) Erdmann (1878), Vaihinger (1922), Kemp Smith (1923), Wolff (1960), Beck (1978), Kuehn (1983), Gawlick (1987), Kreimendahl (1990), and Ertl (2002). They differ, in part, over *which* of Hume's challenges to our cognition of causal principles prompted Kant's awakening. I call this *the traditional narrative* not because of its universal acceptance, but rather because of its long provenance in Kant scholarship.

ground and what it grounds.[78] Yet Kant lampoons Wolff and Crusius here for advancing spurious principles. The worlds dreamt up using their principles are mere "worlds of thought."

The traditional narrative suggests that Kant is criticizing his predecessors' dreams from within his own; he is still deep within his own dogmatic slumber prior to the 1770's. *Pace* the traditional narrative, I will argue that an essential part of Kant's dogmatic awakening was already in place by the mid-1760's. This involves a repudiation not of any individual rationalist principles advanced (e.g. the PSR or some causal principle), but rather of the claim that *rationalist metaphysics can contain any dogmatic principles at all*. Investigating Kant's break will illuminate not only a key point of departure from his German rationalist predecessors, but also the foundation of *his rationalist metaphysics without the dogmas* that he develops in the ensuing decades.[79]

The first *Critique* glosses rational cognition as *cognition from principles* (A301-2/B358-9). Rational cognitions are inferred from principles (from geometric principles in geometry, metaphysical principles in metaphysics, etc.). Kant's technical notion of a dogma amounts to a specific kind of principle:

> A direct [*direkt*] synthetic proposition from concepts is a dogma. […] Now all of pure reason in its merely speculative use contains not a single direct synthetic judgment from concepts. For through ideas, as we have shown, it is not capable of any synthetic judgments that would have objective validity; through concepts of the understanding, however, it certainly erects secure principles, but not directly from concepts, but rather always only indirectly through the relation of these concepts to something entirely contingent, namely possible experience (A736-7/B764-5).

A dogma is a "direct synthetic proposition from concepts." Dogmas accordingly have the following three features. First, a dogma is a principle "from concepts"—*from concepts* refers to a kind of rational

[78] As Wolff puts these points: "Philosophical cognition is rational. Who is truly instructed in philosophical cognition perceives the ground of that by which something is or is produced (§6 *Disc. Praelim.*), and therefore the connection of both coexisting and mutually successive things (§10 *Cosmologia*), consequently of true universal propositions or of universal truths (§505 *Logica*). Philosophical cognition is therefore rational (§483)." (*Psychologia Empirica* §499). For Crusius, see *Entwurf* §15 and *Weg* §4. For more recent discussion of rational cognition from grounds in these figures and their predecessors (including Leibniz), see Adams (1994), Hogan (2009), and Smit (2009).

[79] I will be solely concerned with *theoretical* reason here; this restriction will be implicit below.

cognition that does *not* involve the construction of concepts in sensible intuition (unlike geometric principles) (A713/B741). Second, a dogma is synthetic. The connection of elements expressed in a dogma is therefore *non-logical*; it does not hold on pain of contradiction. Third, the connection of elements expressed in a dogma must be *direct*—their connection must be cognizable through reason alone, and thus without the aid of any other cognitive capacities. Cognition of a dogmatic principle is based on the mere fact that reason cannot conceive of it other than as true. This third feature distinguishes dogmas from other synthetic principles from concepts. Take the first *Critique*'s principles of possible experience. As Kant indicates above, the possibility of cognizing these principles requires cognitive capacities beyond reason itself (e.g. sensibility and the understanding). These principles are therefore not dogmas.

In short, then, a *dogma* is a synthetic principle cognizable through reason's unaided powers. They are distinguished not by their content, but rather by their scrutability to unaided reason. The notion of a dogmatic principle is therefore far broader than any individual principles about causation or grounding (even the PSR). For instance, if the principle *all alterations have a cause* were a dogma, it would simply be unthinkable to reason that an alteration existed without a cause—no intricate proof involving the conditions of possible experience needed. This characterization of dogmas extends back to Kant's works in the mid-1760's.[80]

My central thesis is that Kant's awakening from his dogmatic slumber involved just that: not a piecemeal rejection of *this* or *that* principle (such as the PSR), but rather a wholesale rejection of dogmatic principles as such—a rejection that already occurred by the mid-1760's. In recounting his awakening in the *Prolegomena* (1783), he credits Hume for repudiating all dogmatic principles:

[80] For instance, he describes "the dogmatic part" of *Dreams of a Spirtseer* (1766) as proceeding from grounds of reason [*Vernunftgründe*] (AK 2:358). Or as he puts it in a *Reflexion* from the 1760's: "Dogmatic and objective are those cognitions, which are valid for everyone and rest on mere concepts." (AK 17:360). This is not to deny that Kant sometimes uses the term "dogma" and its cognates in other senses (e.g. in the pejorative sense). For overview of some of these other senses and their connection to the Wolffian tradition, see Paccioni (2011).

> He [Hume] undisputably proved that it is wholly impossible for reason to think such a connection *a priori* [=causation—JS] and from concepts, because this connection contains necessity; and it is simply not to be seen how it could be, that because something is, something else necessarily must also be, and therefore how the concept of such a connection could be introduced *a priori*. (AK 4:257).[81]

My central thesis does not mean that Kant's repudiation of all dogmatic principles in the mid-1760's was *sufficient* for his dogmatic awakening—only that it was *necessary* for it.[82] To defend this thesis, I will trace Kant's repudiation back to two key works in the 1760's: *Negative Magnitudes* (1763) and the *Inquiry* (1764).

Central to these works is the notion of a *real ground*, which are contrasted with *logical grounds*. The basic feature of real grounds is that the grounded does not follow from its real ground via the principle of identity, or on pain of contradiction (AK 2:202-3). Kant argues in *Negative Magnitudes* that the existence or possibility of something never follows from its ground logically, or on pain of contradiction. As I clarify below, the logicist attempt to reduce all grounds to logical grounds inevitably involves vicious circularity. To avoid this, real grounds are introduced as *non-logical* grounds of the existence or possibility of something else.[83] For instance, causes are real grounds of their effects; substances are real grounds of their inhering accidents (AK 28:24-5). Kant's introduction of real grounds in the 1760's has been widely discussed. Indeed, it has spawned a rival to the traditional narrative, which we might call *the anti-logicist narrative*. On this narrative, Kant's introduction of real grounds itself constitutes his break from his dogmatic slumber in the 1760's.

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[81] Although Kant is concerned with principles concerning causation here, he subsequently extends it to all connections in metaphysics: "[…] far from [cause—JS] being the only concept through which the understanding thinks connections of things *a priori*; rather, metaphysics consists wholly of such concepts." (AK 4:260). For Kant and his German rationalist predecessors, causation is one specific kind of grounding. Cf. Watkins (2005), Hogan (2009), and Stang (2016).

[82] To this extent, my central thesis is compatible with—though does not entail—a weaker construal of the traditional narrative, on which Kant's dogmatic awakening was only *fully* realized in the 1770's. I must leave Kant's complicated relationship with Hume for discussion elsewhere. However, it is not implausible that Kant first read Hume (in German translation) in the early 1760's. For discussion, see Erdmann (1888), Vaihinger (1922, 344-7), Laywine (1993), Watkins (2005), De Pierris and Friedman (2018), and Anderson (2020).

[83] Cf. AK 2:77-8, AK 2:199-202, and AK 28:12.

Kant awakens through the realization that not all connections of grounding are rationally cognizable via logical analysis alone.[84] My narrative overlaps with the anti-logicist narrative, insofar as it also claims (i) that a key part of Kant's dogmatic awakening already occurred in the 1760's and (ii) the introduction of real grounds was somehow central to this awakening.

Yet in the first part of our investigation, I will argue—*pace* the anti-logicist narrative—that far from defeating the threat of dogmatism, Kant's argument for the indispensability of real grounds in *Negative Magnitudes* makes the introduction of dogmatic principles alluring in the first place. For once non-logical connections of real grounding are admitted, the pressing question for the aspiring rationalist becomes how rational cognition of such connections is possible. Dogmatic principles become alluring to the aspiring rationalist here because they would be both cognizable through the unaided powers of reason and capable of capturing the non-logical connection between a real ground and the grounded (the "consequence").

In the second part of our investigation, I will contend that the contemporaneous *Inquiry* wrestles with the challenge posed by dogmatism. As we will see, this work borrows a key idea about the structure of metaphysics from Kant's great German rationalist predecessor, Crusius. The idea is that metaphysics must ultimately rest upon *formal* principles, which would provide universal grounds of truth of all other principles. Cognition of connections of real grounding comes to ultimately rest upon *non-logical* formal principles. To fill this void, Crusius' dogmatism introduces *dogmatic* formal principles into metaphysics. Despite agreeing with Crusius on the need for formal principles in metaphysics, the *Inquiry* goes on to repudiate Crusius' dogmatism (AK 2:293-6).

In the third (and final) part of our investigation, I will reconstruct the *Inquiry*'s neglected repudiation. In brief, I will argue that the very same problem of circularity that leads Kant to real

[84] More recent proponents of the anti-logicist narrative include Laywine (1993), Watkins (2005, 169-70), Anderson (2015, 10-11 and 34), De Pierris and Friedman (2018), and Anderson (2020, 38-9).

grounds in *Negative Magnitudes* also leads him to reject Crusius' dogmatism in the *Inquiry*. This circularity problem generalizes to rule out any form of dogmatism. Thus, as we will see, the *Inquiry* concludes that the only principles cognizable by reason unaided are *logical* ones (AK 2:294). And by repudiating dogmatism, Kant already recognized by the mid-1760's that dogmatic principles cannot provide the basis for an adequate account of rational cognition from real grounds. Once dogmas are repudiated, Kant must look beyond reason itself to other cognitive capacities (such as sensibility) for the non-logical principles that are needed to save the possibility of rational cognition from real grounds.[85]

In section II, I detail *Negative Magnitudes*' argument for introducing real grounds and the ensuing problem of how rational cognition from real grounds is possible. In section III, I elucidate the *Inquiry*'s view that *formal* principles are needed to account for rational cognition from grounds and how Crusius' dogmatism meets this need with dogmatic formal principles. In section IV, I reconstruct the *Inquiry*'s neglected argument against Crusius' dogmatism. In section V, I conclude by clarifying Kant's chief challenge going forward: is rationalist metaphysics possible *without the dogmas*?[86]

II. *Negative Magnitudes* and the Need for Real Grounds

The closing pages of *Negative Magnitudes* argue that metaphysics requires connections of *real* grounding—connections of grounding that do not hold on pain of contradiction and thus that cannot be rationally cognized by means of logical analysis alone. If its argument for introducing real

[85] Although the primary aim of this investigation is reconstructive, it is directly relevant to contemporary discussion of grounding. Many philosophers nowadays maintain that at least some connections of grounding are synthetic. Yet few have explained how cognition of these connections is possible beyond appealing to the very "rational conceivability" arguments that are problematized in Kant's reflections in the 1760's. For contemporary discussion, see Thomasson (2007), Chalmers (2012), and Schaffer (2017b).

[86] In their critical-historical editions of these texts, Walford and Meerbote (1992, lix-lxiv) and Kreimendahl (2011) both date the *Beweisgrund* to Autumn 1762, the *Inquiry* to the very end of 1762, and *Negative Magnitudes* to mid-1763 (at the latest). My decision to address *Negative Magnitudes* before the *Inquiry* is not meant to imply any revisionary chronology. Rather, the *Inquiry* will clarify why Kant faces a crisis regarding rational cognition from grounds in *Negative Magnitudes*—one that cannot be answered through dogmatic principles. For reasons of space, I must leave the *Beweisgrund* (and even earlier works) for discussion elsewhere.

grounds is sound, *Negative Magnitudes* would spell disaster for *logicist rationalism*—the view that all connections of grounding are rationally cognizable through logical analysis alone.[87] Yet by reconstructing this argument, we will see that Kant awakens to the need for real grounds only to find himself in a rationalist's nightmare. He faces a non-logical (or synthetic) gap between real grounds and their consequences, yet no positive framework to account for our cognition of them. It is precisely this challenge facing Kant's account of rational cognition, I will propose, that gives dogmatism its appeal in the first place.

Negative Magnitudes' argument for real grounds rests on ruling out the logicist alternative (AK 2:202-3). What would be required for the possibility or existence of something to follow from its ground via logical analysis alone (per this alternative)? For entity β to follow from its ground α via logical analysis, the concept <β> would have to contain <grounded in α> (=the concept expressing β's connection to its ground). Yet for logical analysis to adequately explain their connection, the concept <grounded in α> would have to be reduced via further analysis into concepts that do not have the notion <ground> as a constituent part. If no such analysis is possible, then the connection that β bears to its ground α cannot be explained in terms of logical analysis alone. For the only "explanation" of their connection in terms of logical analysis alone would be viciously circular; it would already presuppose the very connection of grounding in question. Such an explanation would be akin to explaining how opium induces sleep by appealing to *the dormitive virtue* (and with the same soporific effect!). This "explanation" already conceives of opium as having the very causal power that is to be explained.

[87] This sort of rationalism is often tied to Christian Wolff and his followers. Space prohibits me from assessing the accuracy of this reading here and Kant's complicated relation to the Wolffian tradition more generally. Though for discussion, see Cassirer (1907), Heimsoeth (1926), Wundt (1945), Tonelli (1959), Beck (1969), Watkins (2005), Hogan (2009), Anderson (2015), Stang (2016), and Abaci (2019).

So to reach the conclusion that certain connections of grounding must involve real grounds, *Negative Magnitudes* argues that some concepts of grounds in fact cannot be reduced via logical analysis. In other words, its key premise is that some irreducible notion(s) of real grounds remain left over from logical analysis. How, then, does *Negative Magnitudes* argue for this key premise?[88]

The following passage encapsulates Kant's answer:

> Nor am I willing to be fobbed off by the words 'cause' and 'effect,' 'force' and 'action.' For I already regard something as a cause of something else, or if I attach the concept of force to it, then I am already thinking of the cause as containing the relation of the real ground to its consequence, and then it is easy to understand that the consequence is posited in accordance with the rule of identity. For example, the existence of the world can be understood with complete distinctness in terms of the omnipotent will of God. But here 'power' signifies something in God, in virtue of which other things are posited. But this word already designates the relation of a real ground to its consequence, but it is this relation which I wish to have explained. (AK 2:203).

Kant first concedes here that once the concept of the consequence is taken to contain (as part of its identity) the concept of its connection to its real ground, the former logically follows from the latter. For instance, suppose the concept <the existence of the world> contains the concept <follows from the omnipotent will of God>. It might then seem that logical analysis would suffice to explain the existence of the world in terms of God's omnipotent will. Yet Kant further notes that the concept <power> is contained within the concept <the omnipotent will of God>. Now it must be asked: what does the concept <power> amount to? On Kant's view, it conceals the concept of a causal ground; roughly, *having the power to bring about φ* is cashed out in terms of *being a ground of the existence of φ under such-and-such circumstances* (AK 28:26-7). No analysis is forthcoming of the concept <power> in terms that do not already presuppose some concept of ground.

[88] Although my reconstruction of *Negative Magnitudes'* argument overlaps with Stang's (2016, 82-91) in many respects, it has two crucial differences. First, Stang does not note how *Negative Magnitudes'* argument appears to provide fertile ground for dogmatism. Second, unlike Stang, I will later show how *Negative Magnitudes*' argument partly underlies Kant's rejection of dogmatism in the *Inquiry*.

If this is correct, then although logical analysis can isolate some concept of a ground, logical analysis does not *explain* this concept in more basic terms ("But this word already designates the relation of a real ground to its consequence, but it is this relation which I wish to have explained"). So in the above case, logical analysis presupposes the connection of grounding between God's will and the existence of the world; it does not (non-circularly) explain it. The concept <the existence of the world> does not follow from <the omnipotent will of God> via logical analysis alone; their connection does not follow on pain of contradicting the identity of anything. But this just is to say that the connection of grounding between the referents of these concepts stands in a connection of *real* grounding; the omnipotent will of God would be a real ground of the existence the world.

Kant suggests that this example generalizes to other grounds of possibility and existence; an exhaustive logical analysis still leaves us with unanalyzable concepts of real grounds:

> That concept [of the relation of a real ground to something—JS] can probably be reduced by means of analysis to simple concepts of real grounds, albeit in such a fashion that in the end all our cognitions of this relation reduce to simple, unanalyzable concepts of real grounds, the relation of which to their consequences cannot be rendered distinct at all. (AK 2:204).

If this generalization is correct, logical analysis alone cannot render intelligible how a real ground brings about its consequence. At most, it will merely isolate a simple concept of a real ground. For instance, although concepts of derived powers (e.g. in physics) may be analyzable into concepts of more fundamental powers, the ground-theoretic concept <power> is not eliminable via logical analysis. As Kant puts this point in the contemporaneous Herder transcripts: "We think of powers merely rationally [*blos vernünftig*] when we try to subordinate a real ground to another acquainted one [*bekanten*] according to the rule of identity: until one comes to the fundamental power [*Grundkraft*] whose connection is not derived from any other." (AK 28:24-5).[89]

[89] Even if one is persuaded that no logical analysis of concepts of real grounds has *yet* been provided, one might wonder why no such analysis is possible *in principle* (as Kant suggests above). Unfortunately, *Negative Magnitudes'* terse discussion leaves this question unanswered. However, as I will note in the conclusion, *Negative Magnitudes* occasionally suggests that

If Kant is correct in *Negative Magnitudes* that real grounds cannot be reduced via logical analysis, this carries important ramifications for both metaphysics and the possibility of rational cognition from grounds therein. First, irreducible real grounds must be admitted in metaphysics to account for the possibility and existence of things; logical grounds alone will not suffice. And insofar as there are irreducible real grounds, not all connections of grounding will be rationally cognizable by means of logical analysis alone—*pace* the core claim of logicist rationalism.

Does logicist rationalism's demise in *Negative Magnitudes* awaken Kant from dogmatic slumber? Proponents of the anti-logicist narrative have suggested precisely this. As Friedman and De Pierris (2018) put it, Kant awakens in *Negative Magnitudes*—by way of reading Hume's *Enquiry*—to the fact that "The fundamental problem with the relationship between a real ground and its consequent, therefore, is that the consequent is *not* identical with either the ground or a part of this concept—i.e., it is *not* "contained in [the ground] by the analysis of concepts." Admittedly, Hume's *Enquiry* does not explicitly talk about real grounds, but the idea is easily translated into his idiom—especially given that Kant treats causes as a kind of of real ground (as Friedman and De Pierris emphasize).

It is not obvious (given the lack of direct textual evidence) that Kant was influenced by Hume in this respect. But even granting that he was, I surmise that far from curing dogmatic slumber, *Negative Magnitudes'* admission of real grounds rather threatens to induce it. To wit, dogmatism promises to fill a lacuna that is left by the work's admission of real grounds. The lacuna is this: if reason cannot cognize something from its real ground via logical analysis alone, how is the rationalist aspiration for cognition from grounds possible? As *Negative Magnitudes* puts it: "But what I should dearly like to be made distinct [*deutlich machen lassen*], however, is how one thing issues from

we have some limited *non-rational* grasp of connections of real grounding via intuition. In any case, I will leave the question of how a committed logicist could respond to *Negative Magnitudes*' allegations for discussion elsewhere.

another thing, though not by means of the law of identity. […] As for this real ground and its relation to its consequence my question presents itself in the following simple form: How am to understand the fact that, because something is, something else is?" (AK 2:202, translation modified). Without an answer, the core rationalist aspiration for rational cognition from grounds is doomed. Since reason's cognitions run through principles, saving rational cognition from real grounds will require cognition of non-logical (or *synthetic*) principles expressing such connections. But from where will reason draw cognition of the requisite principles?

At this juncture, the aspiring rationalist finds herself at a fork in the road. On the first path, reason is to look beyond its own unaided powers; it is to borrow the requisite principles from some sources of cognition beyond reason itself. This is the anti-dogmatic path that Kant will ultimately travel down (more on this in the concluding section). But there is a second path: the dogmatic path. Far from taking real grounds to signal the demise of cognizing connections of grounding through reason's unaided powers, the dogmatic path introduces non-logical (or synthetic) principles that are cognizable to unaided reason. Such principles would therefore be *dogmatic* principles (in the sense outlined in section I).

It is not difficult to see why the aspiring rationalist would be—at least on first approach—simultaneously attracted to the dogmatic path and repelled from the anti-dogmatic path. On the one hand, as a champion of reason, the aspiring rationalist will be naturally inclined to look to reason itself for the completion of its own task of attaining rational cognition from grounds. Such confidence in reason is ostensibly not pollyannish, given reason's successful track record. Specifically, in the case of rational cognition from *logical* grounds, reason unaided furnishes us with the requisite *logical* principles (e.g. the principle of identity and the principle of contradiction). So why not also the requisite *non-logical* principles in the case of rational cognition from *real* grounds? On the other hand, the opposing anti-dogmatic path would restrain reason; it would imply that

reason's unaided powers do not supply the requisite principles needed to cognize connections of real grounding. Leaving the safe confines of reason raises further uncomfortable questions. Supposing the requisite non-logical principles are not dogmatic (and thus do not come from reason itself), what is their source? And what license does reason have to appropriate them?

So far from marking his awakening from dogmatic slumber (as proponents of the anti-logicist narrative suggest), Kant's admission of non-logical connections of real grounding in *Negative Magnitudes* is precisely what gives dogmatism its soporific allure. For this admission gives rise to the problem of how rational cognition from real grounds is possible—which the dogmatist duly answers by looking to reason itself for the requisite non-logical principles. And as we will see in the next section, Kant's influential German rationalist predecessor, Crusius, painstakingly develops the dogmatic path. Why, then, does Kant eschew it? Unfortunately, this key issue goes unanswered in *Negative Magnitudes*—though not without alluding to dogmatism's proponents in the work's final sentence: "In the meantime, those whose presumed insight [*angemaßte Einsicht*] recognizes no limits will test the methods of their philosophy to see how far they can advance regarding this kind of question [i.e. the question of real grounds—JS]." (AK 2:204, translation modified).

III. Into Deeper Dreams: Formal Principles and Crusius' Dogmatism

In investigating the question "Are the metaphysical sciences capable of the same evidence as the mathematical sciences?," the contemporaneous *Inquiry* (1764) forecloses the dogmatist path—or so I will argue over the next two sections. The *Inquiry*'s argument is primarily directed against Kant's influential contemporary, *Crusius* (AK 2:293-6). Like Kant, Crusius held that non-logical principles are required to fully account for rational cognition from grounds (*Weg* §258-62).[90] But unlike Kant, Crusius introduces dogmatic principles to provide the requisite non-logical principles. These points

[90] As Erdmann (1888, 223) noted long ago, Kant's position in *Negative Magnitudes* here was likely influenced by Crusius. Many have since echoed that claim—including Cassirer (1907, 596-8), Heimsoeth (1926), Watkins (2005), Hogan (2009), and Anderson (2015).

are well-recognized. But as far as I can tell, no other scholar has similarly proposed that the *Inquiry* is central to Kant's dogmatic awakening, much less reconstructed its argument against Crusius' dogmatism.[91]

To show how and why the *Inquiry* rejects Crusius' dogmatism, we must first understand its debt to Crusius' conception of rational cognition. As Kant acknowledges: "At the same time, I shall offer a brief account of the true content of *Crusius*'s method, which is not as different from that of the philosophy contained in this treatise as may, perhaps, be thought." (AK 2:294). To wit, we will see that the *Inquiry* follows Crusius in taking two different kinds of principles to be required for rational cognition: *material* principles and *formal* principles. Crusius' dogmatism will be distinguished by its introduction of dogmatic formal principles. The next section will then reconstruct the *Inquiry*'s argument against Crusius' dogmatic formal principles (presented at AK 2:295-6), and how it generalizes to rule out dogmatism altogether as an adequate basis for rational cognition from real grounds.

Like *Negative Magnitudes*, the *Inquiry* assumes a foundation of irreducible, simple concepts [*Grundbegriffe*] (AK 2:280). A *material* principle expresses a connection between specific concepts (AK 2:294-5). *First* material principles are the most basic material principles; they express connections involving simple concepts (AK 2:280). Because simple concepts lack any further parts, first material principles cannot be derived from simple concepts via logical analysis (AK 2:294).[92] First material principles are instead derived via *synthesis*. Whereas analysis involves breaking apart a concept into its

[91] The *Inquiry* is sometimes taken to mark a modest development in Kant's thought. Compare Anderson's (2015) tepid summary: "the Inquiry concludes only that metaphysics should curb its Wolffian enthusiasm and exhibit a bit more caution." (155). Although Allison (2015) and Stang (2016, 154-6) both correctly recognize the relevance of the *Inquiry* to Kant's project of securing a foundation for cognition from real grounds and his engagement with Crusius in this work, neither scholar even attempts to reconstruct the *Inquiry*'s case against Crusius' dogmatic principles, and thus neither adequately shows Kant's rationale for rejecting dogmatism. The same silence is found in other works that discuss Crusius' influence on Kant, e.g. Erdmann (1862), Cassirer (1907), Heimsoeth (1926), Wundt (1945), Tonelli (1976), Grier (2001), Watkins (2005), Hogan (2009), and Prunea-Bretonnet (2011).

[92] In this sense, first material principles are said to be *indemonstrable* [*unerweislich*] (AK 2:281-2).

constituent concepts, synthesis involves combining concepts together. As Kant puts it: "to combine simple given cognitions by means of synthesis and thus to come to consequences" (AK 2:282). Schematically, suppose that a simple concept <F> must be combined via synthesis with another simple concept <G>. This synthesis would ground the truth of the first material principle that *all Fs are Gs*.

As our sketch of *Negative Magnitudes* highlighted, connections of real grounding ultimately rest upon simple concepts of real grounds. Since first material principles express connections among simple concepts, these principles are apt to express connections of real grounding. Thus, the possibility of rational cognition of connections of real grounding comes to stand or fall with cognition of first material principles. As the *Inquiry* suggests: "Such material principles constitute, as *Crusius* rightly says, the foundation of human reason and the guarantor of its stability." (AK 2:295).[93] The *Inquiry* accordingly claims that mathematics and metaphysics both rest upon first material principles. As for mathematics: "there are only a few fundamental *indemonstrable propositions* in mathematics […] Examples of such principles are: *the whole is equal to all its parts taken together; there can only be one straight line between two points*, and so forth." (AK 2:281). As for metaphysics: "in metaphysics, the place of these definitions is taken by a number of indemonstrable propositions which provide the primary data, which still can be just as secure; they furnish either the material for explanations or the ground of secure consequences." (AK 2:296). The *Inquiry* provides only a few examples of first material principles in metaphysics, e.g. "A body is composite." (AK 2:295).

Where first material principles arrive in the order of inquiry helps to distinguish (what Kant calls) the *analytic* method and the *synthetic* method. The synthetic method begins by specifying such

[93] For Crusius' parallel distinction between analysis and synthesis, see *Weg* §570-84. Although Kant does not explicitly link synthesis to real grounds in the *Inquiry* itself, he does so in contemporaneous *Reflexionen*, e.g. the following: "The relation of a logical ground (*ponens* or *tollens*) is analytic […] the relation of a real ground is synthetic" (AK 17:283). Cf. *Reflexionen* 3738, 3744, and 3756. This is likewise noted by Longuenesse (1998, 353) and Anderson (2015, 179-89).

principles; the analytic method does not (AK 2:289-90). This point has already received significant attention.[94] Yet for purposes of understanding the basis for rational cognition from real grounds, of primary importance is not the location of first material principles in the order of inquiry, but rather how cognition of these principles is possible at all. Since the possibility of rational cognition from real grounds turns on cognition of first material principles, it becomes imperative to account for our cognition of them.

Since first material principles are derived via synthesis, their truth depends on the conditions under which concepts are combinable via synthesis. These conditions are provided by *formal* principles. Unlike material principles, formal principles do not express connections between specific concepts. Rather, they detail *how* concepts can be combined; they provide general conditions under which concepts are combinable at all. As Kant clarifies in the contemporaneous Herder transcripts: "a formal principle [*principium formale*] [is] that which only contains the highest rule for how all predicates shall be compared with the subjects […] a material principle [is] that which only contains the highest rule for which predicates shall be compared with the subjects." (AK 28:8). Since material principles are derived via synthesis and formal principles govern the combinability of concepts via synthesis, formal principles provide the highest grounds of the truth of material principles. Whereas the truth of derivative material principles may be logically inferred from first material principles, the truth of a first material principle is grounded in nothing other than its agreement with formal principles. As the *Inquiry* puts it, first material principles are immediately subsumed under formal principles: "All these indemonstrable propositions [=first material principles] are subsumed under the formal first principles, albeit immediately." (AK 2:295).[95] So for the aspiring rationalist to attain

[94] For discussion of this point (in both Kant and Crusius), see Cassirer (1907, 521-57) Heimsoeth (1926), Tonelli (1976), Grier (2001), Prunea-Bretonnet (2011), Allison (2015), and Anderson (2015).
[95] For Crusius' discussion of this point, see *Weg* §523 and §266-8.

rational cognition of first material principles from their grounds, she must cognize them from formal principles.

Formal principles therefore play two key roles: they simultaneously provide grounds of cognizing material principles (their *ratio cognoscendi*) and grounds of their truth (their *ratio essendi*). By extension, the possibility of rational cognition from real grounds requires formal principles. That is, since formal principles are required to rationally cognize first material principles from their grounds and since first material principles are required to rationally cognize anything from its real ground, formal principles are required to rationally cognize anything from its real ground. Thus, the possibility of rational cognition from real grounds comes to stand or fall with formal principles and our cognition of them.

What formal principles are there? Crusius and Kant agree that formal principles include logical principles, such as the principle of non-contradiction.[96] A material principle is true only if (and partly because) it does not entail a contradiction. Yet logical principles cannot provide a sufficient ground of the truth of first material principles. For as we just saw, first material principles are not derived via logical analysis, and thus are not true on pain of contradiction. *Non-logical* formal principles are therefore needed to ground the truth of first material principles.

At this key juncture, Crusius embraces dogmatism by introducing dogmatic formal principles. He regards the principle of contradiction and the following two dogmatic formal principles as constituting the three highest formal principles of reason [*die drei Grundsätze der Vernunft*] (*Weg* §262).[97] *The principle of non-combinability* says that if something cannot be thought in combination with something else (though no contradiction is entailed by their combination), they cannot exist together in reality. *The principle of inseparability* says that if something cannot be thought

[96] Cf. *Weg* §421 and AK 2:294.
[97] Crusius explicitly describes these highest principles as formal (*Weg* §421).

apart from something else (though no contradiction is entailed by their separation), they cannot exist apart in reality. They would license rational inferences from the (im)possibility of a connection in thought to its (im)possibility in reality.[98] These two principles are *dogmatic* precisely because they are both synthetic and cognizable by reason unaided; their application is simply based on what is (un)thinkable to reason.

To illustrate how Crusius' dogmatic formal principles would enable rational cognition of first material principles from their grounds, consider simple elements α and β and the corresponding first material principle □(α → β). According to Crusius' dogmatic formal principles, the truth of this principle depends on whether ~β is separable from α in thought. That is, ask whether ~β is thinkable given the thought of α. If not, Crusius' dogmatic formal principles imply that β is necessarily connected to α in reality. So just by cognizing that the absence of their connection is unthinkable, reason would be able to infer a necessary connection between them. The truth of the material principle □(α → β) would thereby be rationally cognizable from its agreement with these dogmatic formal principles. For instance, Crusius claims that it is unthinkable (though not contradictory) for thing A to come into existence without having a cause of its existence. By the principle of inseparability, thing A must have a cause of its existence. If "someone said that thing A is generated without a cause, he would say something absurd [*ungereimtes*], but nothing contradictory." (*Weg* §260). The principle of inseparability would thereby make true the first material principle that *anything that comes into existence has a cause.*[99] From (dogmatic) first material principles, further (dogmatic) material principles can be logically inferred (*Weg* §266-9).

[98] To avoid the conflation of *what is unthinkable given our psychological limitations* with *what is unthinkable in principle*, Crusius recognizes that various qualifications are needed (*Entwurf* §58). For our purposes, I will assume these qualifications are in place. For prior discussion of Crusius' principles, see Cassirer (1907, 521-557), Heimsoeth (1926, 206-28), Wundt (1945, 254-64), Tonelli (1959, 129), Beck (1969, 396), Watkins (2005), Hogan (2009), and Stang (2016). The importance of the *formality* of Crusius' dogmatic principles has unfortunately gone underemphasized in this literature.
[99] For other examples of first material principles, see *Weg* §259-60.

Despite agreeing with Crusius about the need for formal principles, the *Inquiry* declares that there are *only* two formal principles that are cognizable by human reason unaided. And they are both *logical* principles: "These two principles [the principle of identity and non-contradiction—JS] together constitute the supreme universal principles, in the formal sense of the term, of human reason in its entirety." (AK 2:294). Kant therefore implies here that there are no *dogmatic* formal principles, and thus that dogmatism fails. This point is echoed in unpublished *Reflexionen* from the late 1760's:

> But when cognition concerns merely a law of human reason, through which we compare concepts, it is not even objective, and therefore neither true nor false. Ground and consequence are further not at all a property of things, which are given through mere reason, but rather only given through experience. It is, however, a law of reason to look for this relation; all universal rules of reason about cause and effect have no validity for objects whatsoever. (AK 17:373, ~1769).[100]

Without dogmatic principles, reason unaided would be powerless to cognize principles expressing connections of real grounding. Some other source of our cognition of these principles would be needed (e.g. intuition, experience, etc.). If this is correct, Kant already awakens to a key restriction on reason's cognition by the mid-1760's: since all dogmatic principles must be abandoned, reason's unaided powers cannot provide a foundation for rational cognition from real grounds. Thus, the stakes of the *Inquiry*'s neglected argument against dogmatic formal principles could not be higher for the rationalist's core aspiration for rational cognition from grounds.

IV. Dogmatism Declined

Echoing many others, Hogan (2009) describes Crusius' justification for his dogmatic formal principles as "highly dogmatic." (364).[101] This assessment may well be correct. But it is one thing for

[100] Cf. AK 17:341, AK 17:353, AK 17:357, and AK 17:372.
[101] This description is, in part, a reaction to Crusius' doctrine that cognition of these principles is implanted in us by God. Cf. *Entwurf* §322 and *Weg* §431-2. Heimsoeth (1926), Beck (1969), Watkins (2005), and Stang (2016) offer similar reactions.

Crusius' justification for these principles to be dogmatic (in the pejorative sense). It is another thing to reject these principles altogether. Yet the *Inquiry* tersely argues for this stronger conclusion:

> This celebrated man [=Crusius— JS] proposes setting up a supreme rule to govern all cognition and therefore metaphysical cognition as well. The supreme rule is this: *what cannot be thought as other than true is true, etc.* However, it can easily be seen that this proposition can never be a ground of the truth of any cognition. For, if one concedes that there is no other ground of truth which can be given, apart from the impossibility of thinking it other than true, then one is in effect saying that it is impossible to give any further ground of truth, and that this cognition is indemonstrable. Now, of course, there are many indemonstrable cognitions. But the feeling of conviction which we have with respect to these cognitions is merely an avowal [*Geständniß*], not a ground of proof [*Beweisgrund*] that they are true. (AK 2:295).

This argument contains two central premises. The first is a conditional claim: *if* Crusius' formal principles provide no further ground of the truth of a material principle beyond the unthinkability of its negation ("if one concedes that there is no other ground of truth which can be given, apart from the impossibility of thinking it other than true"), *then* these formal principles cannot ground its truth ("not a ground of proof that they are true"). The second premise affirms the antecedent of this conditional. As we saw in the previous section, formal principles play two central roles: they provide both grounds of truth and grounds of cognition of material principles. So if Crusius' dogmatic formal principles indeed cannot ground the truth of material principles (as these two premises imply), this would suffice to rule them out.[102]

Unfortunately, Kant does not explicitly defend either premise here. I will make up for this gap in this section. I propose that the crux of his defense is that Crusius' dogmatic formal principles cannot play both roles; they cannot simultaneously ground the truth of material principles and our cognition of them. And the very same circularity worries that prompted Kant to introduce connections of real grounding in *Negative Magnitudes* will prove key to his defense. After elucidating

[102] For all this argument entails, the *content* of dogmatic formal principles might well still be accurate. That is, it might still be true that thought tracks possibility (as Crusius' dogmatic principles allege). Nonetheless, if dogmatic formal principles cannot play the two central roles that formal principles are supposed to play, they would be false *qua* dogmatic formal principles.

Kant's argument, we will see how it would generalize to rule out the adequacy of any form of dogmatism as a basis for rational cognition from real grounds.

To understand Kant's rationale for the first conditional premise, we must consider what would follow if Crusius' formal principles provided no further ground of truth of a material principle beyond the unthinkability of its negation. This would imply that the unthinkability of the principle's negation is the ultimate sufficient ground of its truth. In effect, the necessary connections represented by material principles would hold in reality *because* they hold in thought. Schematically: material principle $\Box(\alpha \rightarrow \beta)$ would be true because β is unthinkable apart from α. There would be no further ground for why β is necessarily connected to α beyond the unthinkability of the negation of this connection, and thus no further ground for why $\Box(\alpha \rightarrow \beta)$ is true.

This view would amount to (what we might call) an *intellectual idealism* about necessary connections. For the ground of the truth of material principles would ultimately lie in facts about what is thinkable or unthinkable. So insofar as this intellectual idealism is untenable, the first premise of Kant's argument follows: *if* there is no further ground of truth for a material principle beyond the unthinkability of its negation, Crusius' dogmatic formal principles cannot ground the truth of material principles. Now the above passage suggests that Kant rejects the tenability of this intellectual idealism out of hand. Indeed, Crusius himself would agree here. On Crusius' view, although the fact that something is thinkable *indicates* that it is possible, it does not *make* it possible. In his terminology, thinkability is the *indicator* [*Kennzeichen*] of possibility, but not the *essence* [*Wesen*] of possibility.[103] Likewise, the fact that two concepts are unthinkable apart from each other *indicates* that they are necessarily connected, but it does not *ground* their necessary connection.

Since even Crusius would accept the first premise of Kant's argument, he must deny its second premise that *his dogmatic formal principles do not provide a further ground of truth for material principles*

[103] Cf. *Entwurf* §56-8 and *Weg* §264.

beyond the unthinkability of their negation. Otherwise, the argument's conclusion will follow: his dogmatic formal principles cannot ground the truth of material principles. To deny its second premise, Crusius must affirm that his dogmatic formal principles *do* provide a further ground of truth of material principles beyond the unthinkability of their negation. To wit, Crusius identifies the following ground of their truth:

> For *that something is thinkable* constitutes not the essence of possibility, but only the ground of cognizing it. The essence of possibility consists in there being an existing cause available [*vorhanden*] for it. Thus, everything that does not contain a contradiction in itself is possible, because at least God is a sufficient ground available for each one of their kind. (*Weg* §137).[104]

Whether two elements are possibly or necessarily connected is grounded in underlying facts about causal powers. Entity α is compossible with entity β if (and because), once α is posited, something still has the power to bring about β. Entity β is necessarily connected to entity α in virtue of the fact that, once α is posited, nothing—not even God—has the power to bring about ~β. This fact about causal powers grounds the necessary connection between α and β, and thereby grounds the truth of the material principle that expresses their connection (viz. □(α → β)).

It may therefore seem that the second premise of Kant's argument misses its mark. Crusius would deny that his dogmatic formal principles imply that "there is no other ground of truth which can be given, apart from the impossibility of thinking it other than true." (AK 2:295). He would say that there is a further ground of the truth of material principles, viz. in underlying facts about causal powers. His dogmatic formal principles *indicate* this ontological basis in causal powers. For instance, the unthinkability of ~β given α *indicates* that α and β are necessarily connected; it indicates that nothing has the power to bring about ~β conditional on α. But the underlying fact about causal powers is what grounds the truth of the corresponding material principle □(α → β).

[104] Cf. *Entwurf* §56-8.

Yet I propose that Crusius does not get off so easily here. Remember that formal principles play two roles: they must ground not only the truth of material principles, but also our cognition of them. So given that the truth of material principles is grounded in formal principles—where the latter are taken to incorporate their ontological basis in causal powers—material principles would have to be rationally cognizable from causal powers. That is, material principles would have to be rationally cognizable from the underlying facts about causal powers that make these principles true. Is this implication sustainable?

No –in fact, it generates a vicious circle. For as the two previous sections highlighted, rational cognition of causal powers depends upon our cognition of material principles. Specifically, this dependence follows from the facts that (i) reason's cognition of connections of real grounding depends on its cognition of *material* principles and (ii) causal powers are themselves a kind of real grounding. We saw (i) in section III's investigation of the earlier parts of the *Inquiry*; rational cognition involves cognition from principles, and only material principles can enable rational cognition of specific connections of real grounding. And we saw (ii) in section II's investigation of *Negative Magnitudes*; Kant argues there that *having a causal power* presupposes *being a causal (real) ground of something else under certain circumstances* (AK 2:203). Crusius himself likewise construes causal powers as a kind of non-logical ground.[105]

The crux of the problem, then, is vicious circularity in the order of cognition. Since (a) our rational cognition of causal powers depends on cognition of material principles, it cannot be the case that (b) material principles are rationally cognizable from their grounds in formal principles (taken to incorporate underlying facts about causal powers). For (b) would imply that we already have *rational cognition of facts about causal powers*—which, per (a), rests upon our cognition of material principles.

[105] Cf. *Entwurf* §36-8 and *Weg* §149-50.

The larger upshot is that Crusius' dogmatic formal principles fail because they cannot do what formal principles are supposed to do; they cannot provide both grounds of truth and grounds of cognition of material principles. Per the first conditional premise of the *Inquiry*'s argument, unless these dogmatic formal principles have some ontological basis beyond thinkability, they cannot provide grounds of truth of material principles. Per the second premise, if some ontological basis beyond thinkability were incorporated into these dogmatic formal principles (viz. underlying facts about causal powers), these dogmatic formal principles could no longer provide grounds of cognition of material principles (on pain of vicious circularity in the order of cognition). These two premises jointly imply that Crusius' dogmatic formal principles cannot provide grounds of truth of material principles. As the *Inquiry*'s argument concludes: "the feeling of conviction which we have with respect to these cognitions is merely an avowal [*Geständniß*], not a ground of proof [*Beweisgrund*] that they are true" (AK 2:295).

Yet even if the *Inquiry*'s argument against Crusius' dogmatic formal principles succeeds, the question remains: how can Kant rule out the possibility of other dogmatic formal principles, and thus rule out any other form of dogmatism? Without an answer, Kant will still lack adequate warrant for claiming that "These two principles [the principle of identity and non-contradiction— JS] together constitute the supreme universal principles, in the formal sense of the term, of human reason in its entirety." (AK 2:294). I propose here that the *Inquiry*'s argument generalizes to preclude any dogmatic formal principles, given two assumptions already discussed. First, formal principles must provide both grounds of truth and grounds of cognition of material principles. Second, the basic cognitive power of unaided reason is to *think* connections. I surmise that Kant (like Crusius himself) would hold fixed these two assumptions in evaluating any other dogmatic formal

principles.[106] Other dogmatists might still depart from Crusius's causal construal of the ontological basis of dogmatic formal principles. They could *either* (i) deny that there is any ontological basis for these principles beyond the unthinkability of their negations *or* (ii) construe their ontological basis in terms of some *non-causal* kind of real grounding.

But neither option would escape the thrust of Kant's argument against Crusius' dogmatic formal principles. The former option would amount to the intellectualist idealism that both Kant and Crusius reject out of hand. As for the latter option, the ontological basis tied to dogmatic formal principles would have to be a kind of *real* grounding. For the material principles subsumed under them would represent connections of real grounding. The latter option therefore would still face the very same vicious circularity in the order of cognition that plagued Crusius. To rationally cognize material principles from their ground in dogmatic formal principles, cognition of the ontological basis tied to these dogmatic formal principles must be presupposed. But rational cognition of this ontological basis depends on cognition of these material principles. Hence the vicious circle.

Thus, both options would fail to pull reason up by its own bootstraps; dogmatic formal principles cannot simultaneously provide grounds of truth and grounds of cognition of material principles. The larger upshot, then, is that if Kant's argument against Crusius' dogmatic formal principles succeeds, any other dogmatic formal principles will face the same dismal fate as "the world which was conjured out of nothing by *Crusius* employing the magical power of a few formulae concerning *what can* and *what cannot be thought*" (AK 2:342). Recognizing dogmatism's failure is night and day, helping to separate the "dreamers of reason" from the woke (AK 2:342).[107]

V. Conclusion, or Rationalist Metaphysics without the Dogmas

[106] Whether either of these assumptions could be reasonably denied is an interesting question, but not one that I will take up here.

[107] It remains controversial whether *Dreams of a Spirit-Seer* (1766)—from which this description is taken—retains some sympathy for those who claim insight into the supersensible. Suffice it to say, this description is not flattering.

Whither the rationalist's core aspiration for rational cognition from grounds? Kant makes real and rapid progress on this question in the 1760's. As others have rightly noted, *Negative Magnitudes* recognizes that the gap between real grounds and their consequences cannot be bridged through logical principles. Ye as we have just seen, this recognition does not defeat the threat of dogmatism, but rather makes it attractive in the first place as a way of bridging this gap. Nonetheless, the contemporaneous *Inquiry* discerns that this gap cannot be bridged through dogmatic principles (as Crusius had tried to do). This work thereby marks a necessary—even if not sufficient—component in Kant's dogmatic awakening.[108]

The fate of the rationalist's aspiration for rational cognition from grounds henceforth stands or falls with the following question: is rational cognition from grounds possible without the dogmas? Since such cognition involves cognition of principles, a non-dogmatic (or "critical") rationalist metaphysics would involve only *non-dogmatic* principles—principles that cannot be cognized by the unaided powers of human reason. Cognition of non-dogmatic principles would therefore have to be borrowed from some other cognitive capacities.

In recounting his dogmatic awakening some two decades later in the *Prolegomena*, Kant takes Hume to (correctly) recognize this predicament. For he takes Hume to correctly reject all dogmatic principles (AK 4:258). Kant thereby echoes the *Inquiry*'s rejection of such principles some two decades prior. As noted in section I, it is a live historical possibility that Kant read Hume in German

[108] Of course, to count as awakening from one's slumber, one must have first been in it. So it might be objected that without having shown that Kant did endorse dogmatic principles at one point, I have not shown that Kant's foreclosing of dogmatic principles constitutes any part of his dogmatic awakening. I offer two points in response. First, there is ample exegetical space to see Kant as endorsing dogmatic principles earlier in his career—particularly in the *New Elucidation* (1755) and the *Beweisgrund*. For instance, the *New Elucidation* suggests that the principle *God's existence follows from his essence* is not a logical truth; its truth does not stem from analyzing the concept of God (AK 1:394). Admittedly, I cannot discuss these works here; they both present many exegetical difficulties. Second—more importantly—suppose it were correct that Kant did not previously embrace dogmatic principles. Even then, it would still be true that dogmatism was left open as a possible panacea for woes about rational cognition from real grounds before the *Inquiry* and *Negative Magnitudes*. Yet the mere openness to dogmatism, I surmise, suffices to suffer from its soporific influence.

translation in the early 1760's. It is therefore not out of the realm of possibility that Kant's rejection of dogmatic principles in the *Inquiry* was spurred on by Hume.[109]

Yet Kant's recognition of this predicament is no mere parroting of Hume's. Kant's is couched in distinctively Crusian notions (particularly Crusius' all-important distinction between formal and material principles)—notions that Kant retains in the ensuing years. What's more, Kant's ultimate response to this predicament could not be further from Hume's. The *Prolegomena* declares Hume's purported inference from reason's lack of dogmatic principles to the conclusion that "reason has no power at all to think such connections" as "premature and erroneous." (AK 4:258). Some sort of non-dogmatic rationalist metaphysics is evidently possible.

Although this critical rationalist view is only fully developed in Kant's critical works in the 1780's, it already takes root in the mid-1760's. *Negative Magnitudes* and the *Inquiry* both call upon (sensible) intuition to furnish non-dogmatic principles. For instance, *Negative Magnitude* claims that intuition enables motions to be rationally cognized from their real grounds in mechanics (AK 2:194). The *Inquiry* likewise claims that certain first material principles about space are cognizable via intuition:

> I notice that space can only have three dimensions etc. Propositions such as these can well be explained if they are examined *in concreto* so they come to be cognized intuitively [*anschauend zu erkennen*]; but they can never be proved. (AK 2:281).[110]

Unfortunately, these highly suggestive passages are not yet backed by an account of how intuition (or other non-rational cognitive capacities) yields cognition of these principles. So although Kant is inching towards a non-dogmatic account of rational cognition from real grounds by the mid-1760's, this account remains inchoate. And since the boundaries of rational cognition would be determined by the non-dogmatic principles provided on such an account, the determination of those boundaries

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[109] For Hume's rejection of dogmatic principles, see Section IV of the *Enquiry*.
[110] Cf. AK 2:196, AK 2:276-7, AK 2:287, AK 2:290, and AK 2:295-6. For the Crusian roots of this claim, see *Weg* §184-9 and §440.

likewise remains inchoate. So by no means does my narrative entail that Kant had already restricted rational cognition to the bounds of sense by the mid-1760's. Insofar as that restriction is essential to his dogmatic awakening, his realization that metaphysics must abandon all dogmas in the mid-1760's is best regarded as a necessary—but not sufficient—condition on the road to full recovery from dogmatic slumber.[111]

On a philosophical level, what remaining challenges hold Kant back from developing a non-dogmatic rationalist metaphysics? Our investigation points towards the following tentative partial answer. As we have seen, material principles are needed to rationally cognize connections of real grounding. Yet the truth of these material principles (and of our rational cognition of their truth) would be grounded in non-logical *formal* principles. To account for rational cognition from real grounds, then, Kant needs non-logical formal principles that are nonetheless not dogmatic. For *non-dogmatic* non-logical formal principles would (by definition) be cognizable independently of reason. Since cognition of these principles would not come from reason itself, reason could borrow cognition of these principles to cognize the truth of non-dogmatic non-logical material principles from their grounds. Reason would not find itself in the viciously circular predicament of needing cognition of these material principles simultaneously *prior to* and *through* cognition of their grounds in formal principles.

But therein lies a central remaining problem: throughout the mid-1760's, Kant postulates only *logical* formal principles. As he tersely claims in a contemporaneous *Reflexion*: "Formal principles are only the first grounds of analytic or rational judgments." (AK 17:280, ~1764-6).[112] Without an

[111] And indeed, as late as the *Inaugural Dissertation* (1770), Kant advances the view that rational cognition of objects beyond possible experience may be possible. This has led many proponents of the traditional narrative to delay Kant's full dogmatic awakening until sometime after this work. For all my narrative implies, this might still be correct. In any case, the *Inaugural Dissertation*'s view is not obviously based on a temporary resurrection of dogmatic principles (more on this in a later footnote).
[112] Cf. AK 2:77-8 and AK 2:294-5.

account of *non-dogmatic* non-logical formal principles, Kant could not yet develop a non-dogmatic account of rational cognition from real grounds.[113]

Only in the *Inaugural Dissertation* (1770) does Kant officially introduce non-dogmatic non-logical formal principles—as this work's official title suggests: *On the Form and Principles of the Sensible and the Intelligible World*. Sensible formal principles are introduced as principles of the form of the sensible world, and thus of all sensible objects. Specifically, space and time each provide a "first formal principle" of the sensible world (AK 2:402). Sensible formal principles are *non-logical* and *non-dogmatic*; cognition of them is rooted in our forms of sensible intuition—rather than in reason (AK 2:403).[114] The first *Critique*'s celebrated account of the formal principles of experience expands upon this non-dogmatic foundation (A736-7/B764-5). These later works thereby stand to fulfill *Negative Magnitudes'* concluding promissory note: "I have reflected upon the nature of our cognition with respect to our judgments concerning grounds and consequences, and one day I shall present a detailed account of the fruits of my reflections." (AK 2:204).

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[113] The extent to which *Negative Magnitudes* and *Inquiry* are fully aware of this need for non-dogmatic, non-logical formal principles is not entirely clear. Anderson (2015, 156) claims that Kant (*malgré lui*) remains committed in the *Inquiry* to the claim that all truths are logical truths. Yet the *Inquiry* passage he quotes in support of this claim is framed in terms of sufficient conditions for truth, rather than necessary conditions (e.g. "every affirmative judgment is true if the predicate is *identical* with the subject") (AK 2:294). What's more, Kant carefully qualifies that *reason's* formal principles are merely logical (AK 2:294). This phrasing leaves open that other cognitive capacities can supply non-logical formal principles. I leave this complex issue for further discussion elsewhere.

[114] One might allege that Kant does not fully give up on dogmas until sometime after the *Inaugural Dissertation*. For this work attributes a dogmatic end to the concepts of the understanding: "in accordance with it ["the dogmatic end"—JS] the general principles of the pure understanding, such as are displayed in ontology or in rational psychology, lead to some paradigm, which can only be conceived by the pure understanding." (AK 2:396). I cannot hope to fully address this complicated issue here. But for one, it is not clear from Kant's description here (or elsewhere in this work) whether the dogmatic use of the understanding really furnishes principles expressing connections of real grounding. Second, even if the *understanding* provided such principles, it would not follow that they are dogmas. For dogmas must instead be contained in *reason*. Although the distinction between the understanding and reason remains somewhat hazy in the *Inaugural Dissertation*, he does explicitly distinguish the principles of the understanding from "the laws of pure reason." (AK 2:411). Reason, he maintains, help to ensure that the principles of the understanding are not confused with principles of sensibility (AK 2:411). Given these two points, the *Inaugural Dissertation*'s assertion of a "dogmatic end" for principles of the understanding would not imply that this work resurrects dogmatic principles in a dramatical reversal of his views in the mid-1760's. Grier (2001, 52-66) notes the first of these points, but not the second. In any case, even if dogmatic principles were temporarily resurrected in the *Inaugural Dissertation*, this would not undermine the significance of its introduction of non-dogmatic non-logical formal principles vis-à-vis Kant's path towards a non-dogmatic rationalism.

Chapter 3

The Grounds of a Critique of Pure Reason

I. Introduction: Critique, Schmitique

Many metaphysicians assume that metaphysical notions must do more than merely accurately describe the world; they must be *theory-guiding*. Theory-guidingness goes beyond mere truth or extensional adequacy. As Dasgupta (2018) clarifies, "To say that *x* is *theory-guiding* is to say, roughly, that *x* is a standard of 'correctness' by which theorizing may be evaluated […] Here, 'theorizing' may include attitudes and activities such as forming beliefs, performing inductive inferences, giving explanations, and so on." (290). For instance, we ought to theorize in terms of the notion of green (rather than grue).[115] We would be getting something wrong by instead theorizing in terms of grue—even if the resulting gruesome judgments are true. Many likewise hold that we ought to theorize in terms of the notion of ground (rather than schmound—where schmound is some extensionally equivalent permutation on ground). Now the defining commitment of *metaphysical realism* (as it shall be understood here) is that there are *objectively* theory-guiding notions in metaphysics. A notion is objectively theory-guiding only if it is theory-guiding independently of contingent human history, psychology, or biology. But supposing it is not a brute fact, in virtue of what is a notion objectively theory-guiding? Unfortunately, realists have largely passed over this crucial question. Dasgupta (2018) highlights that objective theory-guidingness cannot be explained by stipulative fiat. Nor can it be easily explained by specifying some theoretical role played by objectively theory-guiding notions (e.g. their "naturalness"). For then the question simply becomes why that particular theoretical role is objectively theory-guiding. Hence *the problem of missing value*: "Grounding and fundamentality may get at the world's *structure*, but schmounding and

[115] Recall that *x* is grue $=_{df}$ *x* is examined before time *t* and green $\vee$ *x* is not so examined and blue.

schmundamentality get at the world's *schmucture*! Thus, there may be various metaphysical whatnots out there, but the problem of missing value suggests that they are normatively inert." (310).[116]

Although Dasgupta's formulation of the problem primarily targets latter-day metaphysicians, it also seems to threaten the most famous of all investigations of the possibility of metaphysics: Kant's *Critique of Pure Reason*. A critique of pure reason aims to assess human reason's ability to succeed in metaphysics. This project supposes that success in metaphysics is to be measured (at least in part) by reason's ability to cognize various kinds of grounds [*Gründe*]. With respect to objects of possible experience, reason aspires to "provide satisfactory proofs of the laws that are the *a priori* ground of nature" (Bxix). And in "the second part of metaphysics"—concerned with objects beyond possible experience—reason seeks ultimate ("unconditioned") grounds (Bxix-Bxx). For instance, reason seeks to apprehend the unconditioned ground of thinking (A350), the unconditioned grounds of the world (A409-11/B436-8), and the unconditioned ground of everything possible (A584/B612). But what makes the notion of ground objectively theory-guiding in metaphysics—a standard by which reason's success in metaphysics is to be measured? Without an answer, a critique of pure reason's conclusions about reason's (in)capacity to cognize various kinds of grounds would fail to establish anything about reason's success in metaphysics. A critique of pure reason would be no more apt to measure reason's success in metaphysics than a schmitique of pure reason (i.e. an analysis of reason's success at cognizing grue-like schmounds in metaphysics).

Answering this exegetical question is the primary aim of the present investigation. Yet the answer, I shall conclude, generalizes to yield a potentially promising response to the problem of missing value (applying to cognitive capacities beyond those belonging to reason and notions beyond ground). On this Kantian realist approach, a notion is objectively theory-guiding if (and

[116] Dasgupta (2018) traces the problem of missing value back to earlier parallel discussions in metaethics, e.g. in Enoch (2006) and Dreier (2015). For even earlier discussion, see Kneale (1938).

because) it is required for the successful exercise of those cognitive capacities needed to undertake metaphysics at all.

First, a few words on Kant's notion of ground. In metaphysics, a ground accounts for why its consequence (=the grounded) holds. As Kant puts it, "in metaphysics, however, it [=the concept of ground] is primarily viewed not insofar as it is the ground of cognition, but rather of being [*Daseyns*]." (AK 28:399 [~1784/5], my translation). Kant famously employs many different specific kinds of grounds that play this role (compositional, causal, mathematical, etc.).[117] Unfortunately, less attention has been paid to his general notion of ground. Among the exceptions, this notion is taken to be primitive or even equivocal.[118] Gone virtually unnoted is that Kant's unpublished critical writings repeatedly define the general notion of ground in terms of a universal rule-governed connection: "Now our definition is brought right into order: the ground is that which, having been posited, another thing is posited determinately […] Determinately means according to a universal rule." (AK 29:808 [~1782/3]).[119] The connection between a ground and its consequence involves a positing condition and a universal rule condition. For entity α to ground entity β means that the being ("positing") of α suffices for the positing of β in accordance with a universal rule. Kant's general notion of ground therefore amounts to a nomological notion of ground.[120]

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[117] Kant sometimes characterizes metaphysics as concerned with *real* grounds, rather than *logical* grounds. I will bracket this distinction here. For discussion of Kant's extensive use of grounds (and of this distinction), see Langton (1998), Longuenesse (2005), Watkins (2005), Hogan (2009), Smit (2009), Proops (2010), Anderson (2015), Stang (2019), and Watkins (2019).

[118] Willaschek (2018, 82), Stang (2019, 81), and Watkins (2019) advance the former view; Langton (1998, 198) advances the latter view.

[119] This definition is also articulated at AK 17:28, AK 18:118, AK 28:401, AK 28:408, and AK 29:818. Other passages discussed below allude to it.

[120] Stang (2019) claims that the notion of positing itself presupposes the notion of ground, and thus cannot be used to define the latter. Yet Kant explicitly denies this claim: "But there are cases where something is posited, and another thing is posited after, yet where the one is not a ground of the other. E.g., when the stork comes, good weather follows." (AK 28:549 [~1790/1]). The arrival of the stork is not a ground of the arrival of good weather; the latter does not arrive because the former arrives. Indeed, there is not even a necessary connection between them; the stork could arrive without good weather also arriving. Nonetheless, Kant claims that there is a positing relation between them. This suggests that the positing relation is rather weak (plausibly no stronger than a material conditional). It is therefore not circular to use positing as part of a definition of ground.

Fortunately, a nomological notion of ground is both familiar and coherent. It is not unlike the highly influential deductive-nomological notion of explanation. According to the latter notion, for something (the *explanans*) to explain something else (the *explanandum*) is for the *explanandum* to follow from its *explanans* in accordance with some law(s) that captures their connection.[121] To illustrate, suppose the *explanandum* is the fact that Jupiter is at location *l* at time *t*. The corresponding *explanans* minimally would include Jupiter's prior state and the salient causal laws governing planetary motion. Kant's nomological notion of ground would treat this case in the same manner.[122] Or to take a non-causal case of grounding, Kant claims that the trilaterality of a figure grounds its triangularity (AK 11:36). Accordingly, the triangularity of a certain figure is explained by (a) the positing of its trilaterality and (b) the universal rule that *any trilateral figure is triangular*. More generally, different kinds of grounds (compositional, causal, geometric, etc.) will implicate different kinds of universal rules that express their connection to their consequences.[123]

Yet even if it is conceded that metaphysics ought to use some notion of ground (for formulating its basic questions, giving explanations, etc.), it was hardly uncontroversial for Kant to insist that metaphysics ought to use a nomological notion of ground. Some of his influential German rationalist predecessors (including Wolff and Baumgarten) advance the opposing position that the notion of ground is definitionally prior to the notion of a universal rule; they used the

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[121] Cf. Woodward (2014). A deductive-nomological notion of ground has garnered recent attention. Cf. Kment (2014), Wilsch (2015), Rosen (2017), and Schaffer (2017a).

[122] For discussion of the idea that causation is a specific kind of grounding (a position ubiquitous among Kant and his predecessors), see Watkins (2005) and Stang (2019).

[123] I shall treat Kant's two core conditions on ground (the positing condition and the universal rule condition) as necessary conditions on ground below. Yet to capture the ontological priority of a ground to its consequence, additional conditions are evidently needed. For something can satisfy these two core conditions without being ontologically prior to something else. To use the above example, a figure's trilaterality grounds its triangularity. Yet triangularity also seems to satisfy the two core conditions of the nomological notion of ground, since the converse rule also holds (*any triangular figure is trilateral*). In any case, the need for additional conditions does not undermine the status of the positing condition and the universal rule condition as definitionally necessary for ground. I surmise that Kant appreciates this need, but I leave it for discussion elsewhere. Cf. AK 11:36, AK 28:399, AK 28:489, AK 28:629, and AK 29:809. This issue is parallel to the problem of asymmetry plaguing the deductive-nomological notion of explanation.

former notion to define the latter.[124] The central exegetical issue of our investigation, then, can be disambiguated into the following three contrastive questions:

(1) Why is the nomological notion of ground *objectively theory-guiding in metaphysics* (rather than not objectively theory-guiding in metaphysics)? **(the metaphysics question)**

(2) Why is the nomological notion of *ground* objectively theory-guiding in metaphysics (rather than no notion of ground at all)? **(the ground question)**

(3) Why is the *nomological* notion of ground objectively theory-guiding in metaphysics (rather than some other notion of ground)? **(the nomological question)**

These three questions will be answered in turn.

In section II, I clarify why those notions required to secure reason's successful exercise are objectively theory-guiding in metaphysics (answering the metaphysics question). In section III, I elucidate why some notion of ground is required in a critique of pure reason to secure reason's self-consistency, and thus is required to secure reason's successful exercise (answering the ground question). In section IV, I argue that the nomological notion of ground is required in a critique of pure reason to secure reason's self-consistency, and thus is objectively theory-guiding (answering the nomological question). In section V, I outline how Kant's account of ground generalizes to yield a Kantian realist approach to the problem of missing value. In section VI, I conclude.

II. The Metaphysics Question and Reason's Self-Consistency

To understand why the nomological notion of ground is objectively theory-guiding in metaphysics, we need to first understand what would make any notion at all objectively theory-guiding in metaphysics. This would answer the first question above (the metaphysics question).

[124] As Wolff puts it, "a proposition that articulates a determination in conformity with a ground is called a *rule*." (*Ontologia* §475). Cf. Wolff's *Ontologia* §56 and Baumgarten's *Metaphysica* §14 and §80-3. Kant's unpublished notes and lectures sometimes leave it difficult to tell where his summary of Wolff and Baumgarten ends and where his own position begins. But since their positions in this case oppose his above definition of ground, he cannot simply be summarizing theirs position in offering this definition.

Kant's distinctive answer in the *Critique of Pure Reason* is that objectively theory-guiding standards are not "out there in the world," waiting to be discovered. Nor are they "subjective," based upon our contingent history, psychology, or biology. Rather, they are based (at least in part) upon reason's *essence* or *nature*. As he puts it, "The critique [of reason—JS], on the contrary, which derives all decisions from the ground-rules of its [reason's—JS] own constitution [*Einrichtung*], whose authority no one can doubt, grants us the peace of a state of law" (A751/B779).[125] This answer demands clarification. First, what is essential to reason itself? And second, how does reason's essence yield objectively theory-guiding standards in metaphysics ("whose authority no one can doubt")? By clarifying Kant's answers to these questions in this section, we will see why *securing reason's self-consistency* provides one such objectively theory-guiding standard.

Kant holds that each faculty of the mind has powers and aims that belong to the essence of the faculty in question.[126] Essential to the faculty of reason (as opposed to sensibility, understanding, etc.) is the power to draw (deductive) inferences via logical rules of inference. No other faculty of the mind has the power, for instance, to use modus ponens. As he puts it: "Reason, considered as the faculty of a certain logical form of cognition, is the faculty of inferring, i.e., of judging mediately (through the subsumption of a condition of a possible judgment under the condition of something given)." (A330/B386).[127] An essential aim of reason's exercise of its inferential power is the attainment of *rational cognition*. That is, reason's successful exercise of this power results in rational cognition—not only of logical entailment relations, but also of the conclusions thereby entailed. For

[125] Cf. Cf. Axi-Axii, A11/B24-5, A13/B27, A751/B779, A758/B786, A761/B789, A836-7/B864-5, and AK 5:167.
[126] Cf. A126-7, A302/B359, A307/B363-4, A797-8/B825-6, AK 5:119-20, AK 5:184, and AK 5:187. For recent discussion, see Willaschek (2018), Schafer (2019), and Tolley (2020).
[127] Cf. A303-9/B359-65. Kant attributes to the faculty of understanding a limited power of *immediate* inference (A303/B360). Such inferences involve only a single premise (e.g. from *all Xs are Ys* to *no Xs are not Ys*). In any case, the power to draw *mediate* inferences (which involve more than one premise) is exclusive to reason. Reason alone can employ modus ponens, modus tollens, etc. I will bracket consideration of immediate inferences below.

instance, this power would be successfully exercised if, from cognitions of *p* and the conditional *if p, then q*, reason cognizes *q* by applying modus ponens.[128]

How, then, does reason's power to draw inferences pertain to the possibility of metaphysics? Kant conceives of metaphysics as a science [*Wissenschaft*]. As a science, metaphysics must contain propositions that stand in inferential connections—paradigmatically, between premises and the conclusions they entail.[129] This is not to deny that metaphysics might not contain basic principles that are not inferred from more basic principles (A148/B188). The idea is rather that metaphysics cannot consist in non-inferred propositions alone. For instance, if Moses comes down from Mount Sinai and proclaims that *God exists*—that proposition all on its own does not constitute a metaphysics. By contrast, the proposition *God exists* might be contained in a metaphysics if it were logically inferred from the salient principles (such as the principle of sufficient reason).

Given that metaphysics must contain inferential connections and the faculty of reason alone has the power to draw inferences, reason's successful exercise is a condition of the very possibility of metaphysics. In other words:

(1) the possibility of metaphysics requires reason's successful exercise (viz. of its power to draw inferences).

(1) helps to explain why jellyfish cannot do metaphysics—they lack the power to draw inferences afforded by reason. Unsurprisingly, then, Kant characterizes metaphysics itself as a kind of rational cognition: "the whole (true as well as apparent) philosophical cognition from pure reason in systematic interconnection […] is called metaphysics; this name can also be given to all of pure philosophy including the critique" (A841/B869).

[128] Cf. A302/B358-9 and A330/B387. More on this in section IV.
[129] Cf. A841-42/B869-70 and A849-51/B877-9.

How, then, does (1) provide a basis for objectively theory-guiding notions in metaphysics? Since the possibility of metaphysics requires reason's successful exercise, any notion N that is required to secure reason's successful exercise would be required for metaphysics to be possible. In other words, metaphysics cannot forego any notions that are required to secure reason's successful exercise, on pain of undermining the very possibility of metaphysics. In precisely this sense, N would be theory-guiding in metaphysics. What's more, notion N's theory-guidingness (so construed) would not depend on contingent truths about our history, psychology, or biology. Rather, it would depend on necessary truths: (a) reason's successful exercise is required for metaphysics to be possible at all and (b) N is required for reason's successful exercise. (a) is necessary insofar as it depends on reason's status as the faculty of inference and on an essential condition of metaphysics (viz. that it must contain inferential connections). (b) is necessary insofar as the conditions of reason's successful exercise stem from reason's essence. In precisely this sense, N would be *objectively* theory-guiding in metaphysics. These reflections therefore yield the following principle:

(2) If the possibility of metaphysics requires reason's successful exercise, any notion whose use is required to secure reason's successful exercise is objectively theory-guiding in metaphysics.

(2) helps cash out Kant's claim that reason's essence provides a basis for objectively theory-guiding notions in metaphysics.

In turn, (1) and (2) jointly entail the following sufficient condition for a notion to be objectively theory-guiding in metaphysics:

(Obj) Notion N is objectively theory-guiding in metaphysics if (and because) the use of N is required to secure reason's successful exercise.

(Obj) provides a partial answer to the metaphysics question.[130] Nonetheless, (Obj) is still highly abstract. To apply (Obj), the conditions on the successful exercise of reason's power to draw inferences must be specified.

Kant claims that *self-consistency* is one such condition:

> That which is required for the possibility of any use of reason as such, namely, that its principles and affirmations [*Behauptungen*] must not contradict one another, constitutes no part of its interest but is instead the condition of having reason at all; only its extension, not mere consistency with itself, is reckoned as its interest. (AK 5:120).[131]

Kant clearly cannot mean that no individual human reasoner ever accepts contradictory claims, or that doing so somehow negates her possession of reason. Rather, the idea seems to be that avoiding contradiction is required for the successful exercise of reason's power to draw inferences. That is, avoiding contradiction is required for reason to attain cognition of logical entailment relations and of the conclusions thereby entailed (in the case of sound arguments). Such cognition would be impossible whenever drawing inferences results in contradictory affirmations (A59-60/B83-4). To illustrate, suppose a reasoner cognized (i) $p \rightarrow q$ and (ii) p. If she simultaneously affirmed $\sim q$, she could not attain rational cognition of the logical entailment relation that runs from (i) and (ii) to q via the application of modus ponens. She *a fortiori* could not attain rational cognition of q itself based upon this inference.[132]

Since reason cannot accept contradiction (on pain of undermining the successful exercise of its power to draw inferences), securing logical self-consistency (i.e. recognizing and avoiding contradictions) is required for reason's successful exercise in drawing inferences. From this and (Obj), we get the following condition:

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[130] (Obj) does not touch on objectively theory-guiding notions that are tied to other cognitive faculties (e.g. sensibility and understanding). I leave such notions for discussion elsewhere.

[131] Cf. Bxxiv-Bxxix and A850-1/B878-9.

[132] One remaining question: does accepting a contradiction amount to an unsuccessful use of reason, or does it fail to amount to a use of reason at all? For discussion, see MacFarlane (2000) and Tolley (2007).

Self-consistency constraint: any notion required to secure self-consistency of reason's affirmations is objectively theory-guiding in metaphysics.

In other words, a notion ought to be employed in metaphysics if that notion is required to ensure that reason's affirmations in metaphysics do not contradict each other.[133]

Yet securing reason's self-consistency in metaphysics turns out to be no easy task. In the crossfire of seemingly compelling arguments for contradictory conclusions, reason's self-consistency threatens to become a casualty on the battlefield of metaphysics:

> [R]eason sees itself necessitated to take refuge in principles that overstep all possible use in experience, and yet seem so unsuspicious that even ordinary common sense agrees with them. But it thereby falls into obscurity and contradictions, from which it can indeed surmise that it must somewhere be proceeding on the ground of hidden errors […] Now [*nun*] the battlefield of these endless controversies is called metaphysics. (Aviii, translation modified).

Kant's famous antinomies might be taken to highlight this threat. For instance, the second antinomy asks: are there compositionally simple objects? Whereas the thesis position tempts reason to infer that there are, the antithesis position tempts reason to infer that there are not (A434-5/B462-3). Reason thereby risks entangling itself into contradiction.

III. The Ground Question and the Boundaries of Reason

As the first part of metaphysics, a critique of pure reason aims to secure reason's self-consistency (A11/B25). It aims to do so by determining the boundaries demarcating the kinds of (theoretical) cognition that lie within reason's reach from those that lie beyond it. The idea is that by keeping its inferences within these boundaries, reason would not face the threat of "obscurity and contradictions" that arises when reason tries to settle questions that lie beyond its reach. As Kant

[133] Admittedly, the self-consistency constraint is rejected by some contemporary Kantians. Korsgaard (1989) argues that reason should hold onto its practical commitment to freedom, even if it contradicts reason's theoretical commitments. Cf. Rawls (1975) and O'Neill (1989). Nonetheless, I surmise that the self-consistency constraint is not only attractive, but also clearly articulated by Kant. He explicitly claims that reason's practical commitment to freedom can be maintained only if theoretical reason is not forced to concede the impossibility of freedom (Bxxix-Bxxx). Cf. Rauscher (1998).

puts it, a critique of pure reason aims to determine "not merely limits [*Schranken*] but rather the determinate boundaries [*Grenzen*] of it—not merely ignorance in one part or another but ignorance in regard to all possible questions of a certain sort." (A761/B789).[134]

So what notions are required for determining any boundaries at all, and thus required for a critique of pure reason to secure reason's self-consistency? Insofar as a critique of pure reason is required to secure reason's self-consistency, the self-consistency constraint implies that such notions would be objectively theory-guiding. Although commentators have long attempted to clarify the specific boundaries of reason's cognitive powers that the *Critique*'s titular project purports to determine, this prior question—prior because it concerns the possibility of determining (or cognizing) boundaries as such—has remained largely neglected. The neglect of this question leaves unsettled the possibility of the boundary-determining project of a critique of pure reason.[135]

Kant's answer: a critique of pure reason would determine the boundaries of reason's cognitive powers *from their grounds*. As he puts it:

> But that my ignorance is absolutely necessary and hence absolves me from all further investigation can never be made out empirically, from observation, but only critically, by getting to the bottom of the primary sources of our cognition. Thus the determination of the boundaries of our reason can only take place in accordance with a priori grounds; its limitation, however, which is a merely indeterminate cognition of an ignorance that is never completely to be lifted, can also be cognized a posteriori, through that which always remains to be known even with all of our knowledge. The former cognition of ignorance, which is possible only by means of the critique of reason itself, is thus science […] (A758/B786).

Insofar as a critique of pure reason is required to secure reason's self-consistency, this underlined claim would entail that some notion of ground is required to secure reason's self-consistency, and thus is objectively theory-guiding in metaphysics (per the self-consistency constraint). This

[134] Cf. Axi-Axii, Bxii-Bxvi, A11/B24-5, A13/B27, A396, A761/B789, and A836-7/B864-5.
[135] One source of this question's neglect is the common failure to distinguish boundaries and limits. Many systematic reconstructions of the *Critique*—e.g. Strawson (1966), Grier (2001), Allison (2004), and Allais (2015)—do not distinguish them. But this neglect extends to those who do distinguish them (e.g. Callanan 2021 and Howard 2022).

underlined claim would thereby furnish an answer to the second question posed in section I (the ground question). Now to sketch Kant's rationale for this claim (the goal of this section), we must address the following two questions. First, why is it impossible to determine (or cognize) reason's boundaries in some other way (rather than from their grounds)? Second, how is it possible to determine reason's boundaries from their grounds? As we shall now see, the answers turn on Kant's technical distinction between limits and boundaries.

Let φ be an activity of a faculty F. If φ lies outside the limits or boundaries of F, F lacks the power to φ. Yet one key distinguishing feature of a boundary is its *necessity*.[136] If φ lies outside the limits of F, it is left unsettled whether F's inability to φ is contingent or necessary. Yet if φ lies outside the boundaries of F, φing *necessarily* lies outside F's power, i.e. it is in principle impossible for F to φ. In other words, boundaries (unlike limits) are fixed; whenever φ lies outside the boundaries of F, F is bound to fail in φing. Applied to the boundaries of reason's cognitive powers, what lies outside these boundaries would be impossible for reason to cognize ("ignorance in regard to all possible questions of a certain sort").[137]

Kant considers two different methods for determining reason's boundaries: from the outside or from within—from their consequences or from their grounds. The consequences of reason's boundaries would encompass individual products of reason, e.g. individual metaphysical arguments for cognitions that lie beyond reason's boundaries (A764-9/B792-7). *The skeptical procedure* (as Kant calls it) adopts the former method; it would attempt to ascertain reason's boundaries by criticizing individual products of reason.[138] For instance, the skeptical procedure might criticize reason's

[136] Cf. A395, A744/B772, A758-9/B786-7, A761-2/B789-90, A842-3/B870-1, AK 4:352, AK 4:360-1, and AK 5:188.
[137] Howard (2022) likewise identifies necessity as a distinguishing feature of boundaries. Callanan (2021) and Howard (2022) both identify other features of boundaries. Notably, both insist that the boundary of a domain belongs to that domain without being a part of it (AK 4:352-4). So precisely as Kant suggests (A841/B869), an investigation of the boundaries of reason's cognitive powers in metaphysics belongs to metaphysics without being a part of it.
[138] Cf. A423-4/B451-2, A507/B535, and A761-9/B789-97.

attempt to cognize the existence of God through a particular version of the cosmological argument. This criticism (if successful) would reveal a limit of reason's power to cognize the existence of God.

Yet because the skeptical procedure merely criticizes individual products of reason, it would fail to determine the necessity inherent in reason's boundaries. For even if its criticisms of a particular argument succeed, it leaves open that another argument might yet succeed. For instance, suppose the skeptical procedure successfully criticizes every argument for the existence of God advanced hitherto. For all this shows, refining these arguments or finding new ones might still yield cognition of the existence of God. In effect, iterating the application of the skeptical procedure at most yields an indefinite regress of argument-criticism pairs; the procedure never determines that reason's attempts to reach its desired conclusion are bound to fail.

So although the skeptical procedure can determine reason's limits by criticizing bad arguments in ("dogmatic") metaphysics, it cannot thereby determine the necessity inherent in reason's boundaries. As Kant puts this result, the skeptical procedure "cannot decide anything about reason's expectations of hoping for better success in its future efforts and making claims to that; mere censure can therefore never bring to an end the controversy about what is lawful in human reason." (A764/B792).[139] And since the skeptical procedure's determination of the mere limits of reason leaves open "reason's expectations of hoping for better success," this procedure leaves reason susceptible to attempting to settle questions that in fact lie beyond its boundaries—and thus susceptible to the threat of obscurity and contradictions. To avoid this threat, another procedure is evidently needed to determine reason's boundaries.

Unlike the skeptical procedure, a critique of pure reason's critical procedure aims to determine reason's boundaries from their grounds (A758/B786). This brings us to the second part of Kant's rationale for the above underlined claim; how would determining reason's boundaries *from*

[139] Cf. A758-9/B786-7, A761-3/B789-91, A768-9/B796-7, and A842-3/B870-1.

their grounds enable the critical procedure to determine the necessity inherent in a boundary? Since determining reason's boundaries from their grounds is a distinguishing feature of the critical procedure, it stands to reason that his rationale hinges (at least in part) on underlying assumptions about grounds. I propose two such assumptions.[140]

The first underlying assumption is that a boundary is *necessitated* by its ground, i.e. necessarily, if the ground holds, the boundary also holds.[141] A bit more formally: let β be a boundary of reason, such that the activity of φing lies outside of β. Since β is a boundary (rather than a mere limit), this implies that reason cannot φ. And if α is a necessitating ground of boundary β, then $\Box(\alpha \rightarrow \beta)$. So necessarily, as long as α holds, reason cannot φ (though the fact that an individual act counts as an instance of φing may be contingent).[142]

Nonetheless, the mere fact that a boundary is necessitated by its ground does not suffice to secure the necessity inherent in a boundary. Although a necessitating ground would determine the *conditional* necessity of the boundary (viz. conditional on the ground itself), such a boundary could be surmounted by simply removing the ground. This is problematic, since a critique of pure reason aspires to determine boundaries that are *absolutely necessary*, and thus insurmountable for reason ($\Box\beta$, in the above formalism). The ground here is to determine that "my ignorance is absolutely

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[140] Kant speaks of "*a priori* grounds" above. For discussion of the connection between cognizing something *a priori* and cognizing it from its grounds, see Adams (1994), Hogan (2009), and Smit (2009). One might accordingly propose that Kant's rationale instead hinges on a connection between a prioricity and necessity: whatever is cognizable *a priori* is necessary, and thus insofar as reason's boundaries are cognizable *a priori*, they must be necessary. Although I am sympathetic to this proposal, defending it would require elucidating the vexed connection between a prioricity and necessity—which (on my view) would give way to the assumptions about grounds discussed below anyhow. I therefore leave consideration of the *a priori* for discussion elsewhere.

[141] For Kant's articulation of this assumption for grounds in general, see AK 17:28, AK 18:118, AK 28:401, AK 28:408, and AK 29:808-9.

[142] Hogan (2009) argues that Kant denies that all grounds necessitate their consequences, since (on his reading) free actions are not necessitated by their grounds. Even if Hogan is correct about Kant's account of freedom, it would not undermine my argument here. For here I am merely claiming that the grounds required for a critique of pure reason to determine reason's boundaries are necessitating grounds. This is compatible with the possibility of non-necessitating grounds. With that said, if the notion of ground that is required for a critique of pure reason were the only possible notion of ground, that would indeed exclude the possibility of non-necessitating grounds. I leave open here whether the antecedent of this conditional should be denied or its consequent affirmed.

necessary" (A758-9/B786).[143] So to determine the absolute necessity of boundaries from their grounds, a further assumption is needed—one that would preclude surmounting a boundary by simply removing its ground.

This second assumption, I propose, lies in *what* would provide the ground of the boundaries of reason's cognitive powers. Kant claims that these boundaries would be grounded in reason's essence or nature—specifically, in the constitution of reason's essential cognitive powers. That is, the activity of φing lies within these boundaries only if reason's capacity to φ is grounded in reason's essential cognitive powers. As he puts it, reason's metaphysical investigations are faced

> with tasks [*Aufgaben*] that spring entirely from its [reason's— JS] own womb, and that are not set before it by the nature of things that are distinct from it but through its own nature; so that, once it has become completely familiar with its own capacity in regard to the objects that may come before it in experience, then it must become easy to determine, completely and securely, the domain and the boundaries [*Grenzen*] of its attempted use beyond all boundaries of experience [*Erfahrungsgrenzen*]. (B23, translation modified).[144]

Insofar as reason's boundaries are grounded in reason's essential cognitive powers, they cannot be surmounted by simply removing their grounds. For removing their grounds would *ipso facto* preclude the very possibility of having reason at all.[145]

Given these two assumptions about grounds, the absolute necessity inherent in reason's boundaries could be determined from their grounds. *With* the ground of reason's boundaries in place, these boundaries must hold (per the first assumption). *Without* this ground in place, the possibility of reason itself would be undermined (per the second assumption). So unlike the skeptical procedure, the critique of pure reason's critical procedure could determine reason's boundaries because it would determine them from their grounds—precisely as Kant claims (A758-9/B786-7).

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[143] Kant glosses absolute necessity earlier as follows: "That whose opposite is internally impossible, that whose opposite is clearly also impossible in all respects, is therefore itself absolutely necessary." (A325/B381-2). For discussion of other notions of absolute necessity in Kant, see Stang (2016).

[144] Cf. A321-3/B378-80, A333/B390, A642-3/B670-1, A763/B791, and A834/B862.

[145] The successful exercise of reason's cognitive powers may require the operation of other cognitive faculties, including the understanding and sensibility (A306/B363). It is therefore unsurprising that the *Critique* analyzes those faculties.

This means that regardless of how far reason's boundaries extend (to the bounds of sense or elsewhere), some notion of ground is required to undertake the boundary-determining project of a critique of pure reason.

Given this result and given that the boundary-determining project of a critique of pure reason is required to secure reason's self-consistency in metaphysics, some notion of ground is required to secure reason's self-consistency. Since any notion required to secure reason's self-consistency is objectively theory-guiding in metaphysics (per the self-consistency constraint), this conclusion implies that some notion of ground is objectively theory-guiding in metaphysics—precisely as we set out to show in this section.

IV. The Nomological Question and Critique as Self-Critique

What remains is the last of the three questions raised in section I: why is the *nomological* notion of ground objectively theory-guiding in metaphysics (the nomological question)? Why couldn't some parallel notion (call it "schmound") be employed instead? Whereas the nomological notion of ground is cashed out in terms of a universal rule-governed connection, the notion of schmound is not. As with the previous two questions, I propose that the very project of a critique of pure reason holds Kant's answer to this one. Reason does not merely supply objectively theory-guiding standards for this project (as we saw in section II). Nor is reason merely the object of investigation in this project (as we saw in section III). Rather, reason is also its principal investigator; a critique of pure reason is a project in reason's *self-cognition* [*Selbsterkenntnis*].[146] After all, a boundary does little good if one is not cognizant of it. If reason were not cognizant of its own boundaries, it would remain susceptible to overstepping them, and thus of falling into contradiction.

For a critique of pure reason to be possible, then, reason must employ a notion of ground that enables it to cognize its boundaries from their grounds. But through what notion of ground

[146] Cf. Axi, B421, A735/B763, and A850-1/B878-9.

could reason cognize anything at all from its ground? Unfortunately, although the boundary-determining project of a critique of pure reason stands or falls with it, this question has received little attention. Indeed, proponents of the rival view that Kant adopts a primitive notion of ground (e.g. Stang 2019 and Watkins 2019) have done little to show how reason could cognize something from its ground through such a notion. In this section, I will argue that rational cognition from grounds is possible only via the nomological notion of ground. *A fortiori*, reason could cognize its boundaries from their grounds only via the nomological notion of ground. So if this argument succeeds, the nomological notion of ground would be required for the very possibility of a critique of pure reason, and thus required to secure reason's self-consistency. According to the self-consistency constraint, the nomological notion of ground would be *ipso facto* objectively theory-guiding.

To show that rational cognition from grounds is possible only via the nomological notion of ground, we must establish that this is the only notion of ground compatible with reason's cognitive powers.[147] To this end, recall from section II that drawing inferences is an essential power of reason. It must now be added that reason's cognition is essentially *discursive*, in that reason cannot immediately represent particular objects, their features, or their connections (*particulars*, for short). Rather, reason can only represent particulars through concepts.[148] The conceptual representation of a connection is provided by a (discursive) rule. As Kant puts it: "Now, however, the representation of a universal condition in accordance with which a certain manifold (of whatever kind) can be posited is called a rule, and, if it must be so posited, a law." (A113). So insofar as reason can cognize

[147] A complete reconstruction would require showing how reason's cognitive powers, in turn, satisfy Kant's general constraints on cognition. Fortunately, our comparatively narrow aim does not require this. Though for recent discussion of these constraints, see Watkins and Willaschek (2017).
[148] Cf. A300-2/B357-9, A306-7/B363, and A330/B387 (quoted below).

any connections among particulars at all, such cognition must ultimately proceed from cognition of (discursive) rules.[149]

Since discursive rules do not immediately represent particulars, reason's cognition of these rules alone cannot suffice for cognition of a particular. Instead, to cognize a particular via a rule, cognition of another particular that is subsumable under the condition of the rule must be posited in a separate step. Accordingly, rational cognition of a particular requires two distinct material elements: (i) cognition of a rule and (ii) cognition of another particular that satisfies the condition of the rule. With both elements in place, reason can cognize the particular in question by applying a logical rule of inference. As Kant clarifies:

> The rule says something universal under a certain condition. Now in a case that comes before us the condition of the rule obtains. Thus what is valid universally under that condition is also to be regarded as valid in the case before us (which carries this condition with it). We easily see that reason attains to a cognition […] (A330/B387).

To illustrate, consider cognition of a particular, Ga (*object a is G*). This cognition could not be rationally inferred, in the first instance, from cognition of Fa → Ga and Fa. For given reason's discursivity, its rules do not immediately represent a connection between Fa and Ga. Rather, to cognize Ga, reason could infer Ga from cognition of (i) the universal rule ∀x(Fx → Gx) and (ii) Fa (in this case, Fa satisfies the condition of the rule).[150]

So given reason's discursivity, rational cognition of a *necessary* connection between particulars would require a (strictly) universal rule expressing that connection. Such universal rules include laws and principles, e.g. the principles of mathematics and metaphysics (A300/B356). No wonder, then, that Kant characterizes rational cognition proper as *cognition from principles*: "here we will distinguish

[149] Cf. A330/B386, A333-5/B390-2, AK 4:459, AK 5:412, AK 9:65, AK 16:343-4, AK 16:95, AK 18:417-8, AK 24:50, AK 24:539, and AK 24:730-1.

[150] After inferring a connection among particulars via a rule, reason could inferentially cognize further particulars. For instance, after inferring Ga from cognition of (i) ∀x(Fx → Gx) and (ii) Fa, reason could inferentially cognize further particulars from Ga. This does not undermine the above point, however, that reason's cognition of particulars must ultimately proceed from (discursive) rules.

reason from understanding by calling reason the faculty of principles. […] I would therefore call 'cognition from principles' that cognition in which I cognize the particular in the universal through concepts." (A299-300/B356-7).[151]

Since rational cognition of a necessary connection between particulars would require a universal rule expressing that connection, rationally cognize something (a particular) from its (necessitating) ground *a fortiori* would require employing such a rule. Specifically, rationally cognizing something from its ground would require inferring it from cognitions of (i) a universal rule expressing the necessary connection between it and its ground and (ii) the positing of the ground itself. But this just is to say that to cognize something from its ground, reason must employ the nomological notion of ground. For as we saw in section I, the nomological notion of ground involves the universal rule condition (corresponding to i) and the positing condition (corresponding to ii).[152] Insofar as a substitute notion of ground (such as schmound) does not incorporate both conditions, it cannot play this role. And insofar as a substitute notion of ground does incorporate both conditions, it is simply a more complicated instance of the nomological notion of ground (rather than a genuine alternative to it).[153] In this way, the nomological notion of ground alone is compatible with the inferential and discursive nature of reason's cognitive powers.

This conclusion *a fortiori* extends to the grounds of a critique of pure reason. Since the nomological notion of ground is required to rationally cognize anything at all from its ground, reason's boundaries can be rationally cognized from their grounds only by means of this notion. As Kant suggests, a critique of pure reason must furnish "the decision about the possibility or impossibility of a metaphysics in general, and the determination of its sources, as well as its extent

[151] Cf. B4, A91-2/B124, A306-7/B363-4, A646-7/B674-5, A713-4/B741-2, and A837/B865. Kant himself distinguishes multiple senses of the term "principle" (A299-300/B356-7). This terminological issue is tied to a substantive one about what exactly distinguishes principles from other (strictly) universal rules. Fortunately, nothing hinges on settling this issue here.
[152] Cf. AK 17:28, AK 18:118, AK 28:401, AK 28:408, and AK 29:808-9.
[153] This pair of points applies, *mutatis mutandis*, to those who treat Kant's notion of ground as primitive.

and boundaries, all, however, from principles." (Axii).[154] By cognizing its own boundaries by means of this notion of ground, reason would become cognizant of both the kinds of claims tractable for it (i.e. those within its boundaries) and the kinds intractable for it, which perpetually threaten its self-consistency (i.e. those beyond its boundaries).

Thus, we now have all the pieces needed to show how the objective theory-guidingness of Kant's nomological notion of ground stems from his overarching conception of objective theory-guidingness. As we saw in section II, reason's successful exercise is required for metaphysics to be possible at all—per (1). Given this, any notion required to secure reason's successful exercise is objectively theory-guiding—per (2). And since self-consistency is required for reason's successful exercise, any notion required to secure its self-consistency is objectively theory-guiding (per the self-consistency constraint). As we subsequently saw in section III, a critique of pure reason (the first part of metaphysics) is required to secure reason's self-consistency by determining reason's boundaries from their grounds. And as this section reveals, such cognition is only possible through the nomological notion of ground. This yields the following:

(3) The use of the nomological notion of ground is required to secure reason's successful exercise.

(1)-(3) jointly entail that the nomological notion of ground is objectively theory-guiding in metaphysics—a standard by which reason's success in metaphysics is to be measured.

Difficult exegetical issues undoubtedly remain, including how the nomological notion of ground helps to establish both (i) the exact boundaries of reason advanced in the first *Critique* and (ii) the rest of metaphysics that remains within these boundaries. Only then would the objective theory-guidingness of this notion of ground be established for all of metaphysics.[155] Instead of

[154] Cf. A11/B24-5, A13/B27, A761/B789, A836-7/B864-5, and AK 5:167.
[155] Addressing (i) would require a systematic reconstruction of the first *Critique*. Addressing (ii) would require showing that the rest of metaphysics must be concerned with rational cognition (rather than some weaker attitude) of

narrowing in on these exegetical issues, I wish to conclude by showing how Kant's account of ground generalizes to yield a potentially promising response to the problem of missing value.

V. Metaphysics in Whose Image?

According to (what we might call) *traditional realism*, notions in metaphysics are objectively theory-guiding because they express some privileged metaphysical feature (such as "naturalness"). Dasgupta (2018) supposes this conception of realism throughout most of his investigation: "The realist claims that to get things right is to get it right 'from God's point of view,' or, in more secular terms, to reflect some objective metaphysical whatnot." (317). He argues that this conception of realism falls prey to the problem of missing value. He may be right.[156] In any case, Dasgupta suggests (correctly, I think) that the traditional realist's difficulties motivate exploring alternative conceptions of realism. In this section, I want to argue for a comparatively narrow pair of claims: our investigation of Kant's account of ground (i) highlights a general problem with Dasgupta's parting alternative conception of realism and (ii) yields a Kantian realist approach that offers a more compelling alternative to Dasgupta's.

Dasgupta's parting alternative reconceives objectively theory-guiding standards in an anthropic image. Instead of reflecting God's point of view, a notion is *ex hypothesi* objectively theory-guiding in virtue of being phenomenally acquaintable to us. As he clarifies:

> The result would be a realist view on which it is an objective fact about these acquaintables that they are theory-guiding, and that this is no mystery thanks to our phenomenal acquaintance with them. […] That we happen to be acquainted with it [with green— JS] is, of course, a contingent fact about our circumstances, but the fact that it is acquaintable, and that anyone acquainted with it will appreciate why it is theory-guiding, must be independent of us. (318-9).

connections of grounding (rather than some other kind of connection). I take it that this reflects Kant's position; it is tied to reason's essential aim of ascertaining unconditioned grounds (Bxix-Bxx). For discussion, see Grier (2001), Willaschek (2018), Schafer (2019), and Watkins (2019).

[156] For one response, see Sider (forthcoming).

On this view, notions that are tied to our capacity for phenomenal acquaintance are objectively theory-guiding because anyone acquainted with this capacity will appreciate why such notions (e.g. of green) are objectively theory-guiding. Or more generally—abstracting from his focus on phenomenal acquaintance—a notion tied to cognitive capacity C is objectively theory-guiding if (and because) anyone acquainted with C will appreciate why that notion is theory-guiding.

Despite considering our cognitive capacities, Dasgupta's parting alternative does not consider the conditions or aims of the domain of inquiry to which these capacities are to be applied. But without specifying how our cognitive capacities are apt to satisfy the conditions or aims of the domain of inquiry in question (such as metaphysics), how could it be settled whether a notion is objectively theory-guiding in that domain? That seems akin to asserting that *the tools in our toolbox are useful* independently of specifying the conditions and aims of the building project in which they are to be used. Just as the tools in our toolbox might be unhelpful for satisfying the conditions and aims of the building project in question, there might be a similar mismatch between our cognitive capacities and the conditions and aims of the domain of inquiry in question.

To illustrate the possibility of such mismatch, consider the science of bee vision. Supposing that a central aim of this science is to understand the visual systems of bees, the notions objectively theory-guiding for this science plausibly include those with which we (as human beings) lack phenomenal acquaintance. For bees (unlike us) can see ultraviolet colors. If we stuck with only notions that are phenomenally acquaintable to human beings, we would be unable to realize this central aim of the science. And for all Dasgupta says, the same might go for metaphysics; notions that are phenomenally acquaintable to us may be unsuitable for satisfying the conditions and aims of metaphysics. So the problem here is not Dasgupta's appeal to phenomenal acquaintance *per se*.[157] The

[157] One might even expand the relevant notion of phenomenal acquaintability to include what is phenomenally acquaintable to non-humans.

problem is more general: it is difficult to see how our cognitive capacities (phenomenal acquaintance or otherwise) can furnish objectively theory-guiding notions in metaphysics without specifying how those capacities are apt to satisfy the conditions and aims of metaphysics.

The Kantian realist approach avoids this problem. The approach does not explain the objective theory-guidingness of our cognitive capacities in a vacuum, but rather in relation to the conditions and aims of metaphysics. The approach says that notion N is objectively theory-guiding in metaphysics if (and because) the conditions and aims of metaphysics requires the successful exercise of cognitive capacity C, such that the use of N is required to secure the successful exercise of C. This is simply a generalized version of (1)-(3) detailed above—though now generalized to other cognitive capacities (beyond those belonging to reason) and notions (beyond ground).[158] Schematically:

The Kantian realist scheme (generalized)

(1) Capacity C is required for the possibility of metaphysics.

(2) If capacity C is required for the possibility of metaphysics, any notion whose use is required to secure the successful exercise of C is objectively theory-guiding in metaphysics.

(3) The use of notion N is required for the successful exercise of capacity C in metaphysics.

∴ Notion N is objectively theory-guiding in metaphysics. **(from 1-3)**

On the Kantian realist approach, the fact that N is *objectively* theory-guiding stems from the fact that N's theory-guidingness does not depend on contingent truths about our history, psychology, or biology. Rather, its theory-guidingness depends on necessary truths: (a) the possibility of metaphysics requires the successful exercise of certain capacities and (b) the successful exercise of

[158] One might take issue with Kant's claim that cognitive capacities are contained in underlying faculties (sensibility, understanding, reason, etc.). Hence my framing here in terms of capacities, rather than faculties. Though see Schafer (2019).

those capacities requires the use of certain notions.[159] The requirements on metaphysics are necessary, insofar as they stem from conditions and aims essential to metaphysics. The requirements on the successful exercise of a cognitive capacity are likewise necessary, insofar as they stem from the essence of the capacity in question. So on the Kantian realist approach, N's objective theory-guidingness is not a mere function of the fact that *we* happen to need N to undertake metaphysics, but rather that *any being at all* would need to use N to undertake metaphysics.[160]

Despite this, a traditional realist might still worry that the Kantian sense of theory-guidingness underlying (2) is not sufficiently objective. She might allege that a notion is objectively theory-guiding only if its theory-guidingness entails its *veridicality*, i.e. that it accurately represents reality. For instance, on the traditional realist supposition that theory-guiding notions represent natural properties, these notions must be veridical. But surely the mere fact that a notion is required for the successful exercise of a capacity would not entail that the notion accurately represents reality. In other words, it appears that the mere fact that a notion is theory-guiding in the Kantian sense would not entail the notion's veridicality.

The Kantian realist has several potential lines of response. On the one hand, she might concede that there is no such entailment—that even after establishing that a certain notion is objectively theory-guiding, its veridicality must be established separately. But she can nonetheless insist that such an entailment is not needed for a notion to be objectively theory guiding. For the traditional realist to insist otherwise is simply to beg the relevant question against the Kantian realist; it is to suppose that what notions are objectively theory-guiding must reflect what the world is really

[159] Notions that are phenomenal acquaintable might well satisfy the above scheme (though this would require a separate argument).

[160] So construed, would objectively-theory guiding notions still include those used from God's point of view (*à la* traditional realism)? That depends on how God's intellect is construed. For his part, Kant holds that God would have a fundamentally different kind of intellect—intuitive (rather than discursive). Cf. AK 5:401-10, AK 28:996, AK 28:1017, and AK 28:1051-3. Since God's intuitive intellect would grasp all truths intuitively (and thus immediately), God would not even need to undertake metaphysics (taken as an inferential enterprise) to grasp them.

like (rather than what notions are required to undertake metaphysics at all). On the other hand, she might try to save the entailment from theory-guidingness to veridicality, e.g. by adopting a sort of idealism on which reality itself conforms to the notions that are theory-guiding in the Kantian sense. I surmise that both responses are potentially viable—I leave them (and Kant's own views here) for discussion elsewhere.

So are there in fact any cognitive capacities necessary for undertaking metaphysics (without appealing to mere stipulation)—per (1)? If so, which notions (if any) are required for the successful exercise of those capacities—per (3)? The success of the Kantian realist approach hinges on affirmative answers to these questions. Its success is far from guaranteed. Even Kant's own seemingly modest assertion that self-consistency is required for reason's successful exercise in metaphysics might be challenged; a proponent of paraconsistent logic might allow for true contradictions in metaphysics.[161] In any case, my goal in this section was not to defend the Kantian realist response, but merely to offer it as a potentially promising response to the problem of missing value that improves upon Dasgupta's parting alternative. Its successfulness awaits discussion elsewhere.

VI. Conclusion

If the Kantian realist approach just described succeeds, the problem of missing value will turn out to be a mere symptom of losing sight of the point of view from which metaphysics is undertaken. On this approach, objectively theory-guiding notions in metaphysics are based upon the point of view from which we can undertake metaphysical investigations at all. Never mind whether this point of view resembles God's. Perhaps this point of view will still be dismissed by the

[161] Cf. Priest, Tanaka, and Weber (2018). Likewise, one might worry that the cognitive capacities necessary for undertaking metaphysics can only be ascertained by means of undertaking metaphysics (rather than via an antecedent specification of its conditions and aims *à la* Kant). This would threaten the idea that objectively theory-guiding notions can guide metaphysics from the outset. For discussion of this Hegelian worry, see Watkins (2014).

traditional realist as parochial or insular. Perhaps. "But," if Kant is correct, "a complete overview of one's [*seines*] entire capacity and the conviction arising from that of the certainty of a small possession, even in case of the vanity of higher claims, puts an end to all dispute, and moves one to rest satisfied with a limited but undisputed property." (A768/B796, translation modified).

Chapter 4

Inference to the Only Possible Explanation and Kant's Path to Idealism

I. Introduction

A perennial view has it that just as physics offers physical laws, metaphysics offers metaphysical laws. Leibniz, for instance, famously characterizes the ascent from physics to metaphysics by the latter's use of the principle of sufficient reason (AG 209). Other metaphysical laws might include psychophysical laws and laws of composition.[162] Yet like all things excellent, ascertaining metaphysical laws is as difficult as it is rare. *Nomological rationalism* (as we might call it) offers a solution; it holds that at least some metaphysical laws are cognizable *a priori*, or independently of experience. Nomological rationalism promises the best of both worlds: laws that capture connections among objects in the world (like physical laws), but still within reach of the philosopher's armchair (unlike physical laws). In its seventeenth-century heyday, nomological rationalism appeared to deliver all sorts of interesting metaphysical results—as the works of Spinoza and Leibniz attest. Yet nomological rationalism demands explanation: how can the possibility of *a priori* cognition of metaphysical laws be explained?

The eighteenth-century German rationalists valiantly attempt to address this question. On the one hand, Christian Wolff (1679-1754) purports to derive metaphysical laws *a priori* (including the PSR) via logical analysis. On the other hand, Christian Crusius (1715-1775) denies that such derivation is possible, instead maintaining that certain metaphysical laws are cognizable *a priori* in virtue of being implanted in us by God. Kant famously argues that their answers fail miserably.[163] Nonetheless, the *Critique of Pure Reason* purports to explain how our faculty of understanding can

[162] Contemporary metaphysics has witnessed a resurgence of interest in metaphysical laws. Cf. Kment (2014), Wilsch (2016), Rosen (2017), and Schaffer (2017a).
[163] For discussion, see Cassirer (1907), Heimsoeth (1926), Wundt (1945), Tonelli (1959), Beck (1969), Longuenesse (1998), Watkins (2005), Hogan (2009), Allison (2015), Anderson (2015), and Stang (2016).

cognize certain metaphysical laws *a priori*, viz. *categorial laws*. Categorial laws are laws couched in terms of categorial concepts (<unity>, <substance>, <cause>, <necessity>, etc.). Categorial laws cognizable *a priori* by the understanding include the pure principles of the understanding, e.g. *every alteration in nature has a cause* and *simultaneous substances in nature stand in mutual causal interaction* (A216-7/B263-4). Kant is therefore committed to the following nomological rationalist thesis:

(1) Categorial rationalism: the understanding can have *a priori* cognition of categorial laws, which admits of an explanation.[164]

But Kant infamously argues that explaining the understanding's *a priori* cognition of categorial laws comes at a metaphysical cost. This cognition can be explained only on the hypothesis that these laws are ideal—a hypothesis I will call *categorial idealism*. The argument accordingly takes the form of an inference to the only possible explanation. As he puts it:

> For after this alteration in our way of thinking ["namely that we can cognize of things *a priori* only what we ourselves have put into them"— JS] we can very well explain [*erklären*] the possibility of a cognition *a priori*, and what is still more, we can provide satisfactory proofs of the laws that are the a priori ground of nature, as the sum total of objects of experience—which were both impossible according to the earlier way of proceeding […] (Bxviii-Bxix).

Unfortunately, little consensus has been reached about Kant's inference from categorial rationalism to categorial idealism. Why can't categorial laws be cognized *a priori*, but nonetheless reflect how nature is in itself—as the opposing *categorial realist* hypothesis would have it? Although I do not purport to establish the soundness of Kant's inference, my central aim is to outline a novel reconstruction of this inference that renders it *tractable*—logically valid and not obviously unsound.[165]

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[164] This formulation remains neutral on both the exact extension of the categorial laws cognizable *a priori* by the understanding and whether all categorial laws are cognizable *a priori*.

[165] Two foregrounding notes. First, some hold that Kant does not endorse categorial idealism. On this deflationary interpretation, although the understanding makes possible *a priori* cognition of categorial laws of nature, it does not make possible the laws themselves. Cf. Ameriks (2017), and Massimi (2017). Yet Kant likens the ideality of categorial laws to the ideality of space and time: "For laws exist just a little in the appearances, but rather exist only relative to the subject

My guiding thread is that Kant's inference to the only possible explanation turns on his account of explanation [*Erklärung*]. What would it mean to *explain* the understanding's *a priori* cognition of categorial laws? Proponents of the traditional reading suppose (often without explicit argument) that explanation is mere justification. Their idea is that the understanding's *a priori* cognition of categorial laws can be justified only by invoking categorial idealism.[166] When explanation is construed as mere justification, it is far from clear that the inference to categorial idealism is defensible.[167] But my guiding thread has it that the traditional reading faces a deeper problem: explanation is not mere justification. Kant famously likens the present demand for explanation to "the first thoughts of Copernicus, who, when he did not make good progress in the explanation [*Erklärung*] 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." (Bxvi). When Copernicus sought to explain the observed planetary motions through his heliocentric model, he did not seek to justify the accuracy of his observations. These observed motions were rather presupposed as a datum; his explanation sought to provide *cognition why* this datum held—that *in virtue of which* this datum held. The observed motions were derivable supposing that their ground lay in the planets' revolutions around the sun (per heliocentric

in which the appearances inhere, insofar as it has understanding, as appearances do not exist in themselves, but only relative to the same being, insofar as it has senses." (B164). Cf. A126-7, B163-7, AK 4:297, AK 4:319-20, AK 4:375-6n, and AK 8:221. And by failing to specify the metaphysical underpinnings of the understanding's *a priori* cognition of categorial laws, the deflationary interpretation does not answer the demand for explanation (as construed it below). Although more might be said in favor of the deflationary interpretation, I shall demur here. Second, others might take Kant's idealism about space and time to straightforwardly entail the ideality of categorial laws. While I have no knockdown argument against this proposal, I will not consider it further here. It is difficult to see how this entailment would go; one could putatively accept the ideality of space and time while denying that that categorial features (such as causal features) are ideal. And Kant repeatedly poses the ideality of categorial laws as a question over and above the ideality of space and time. Cf. A93/B125, B163-4, and AK 4:319-22. See Messina (2018) for discussion.

[166] Proponents of the traditional reading include Bennett (1966), Strawson (1966), Kitcher (1980), Pippin (1982), Guyer (1987), Pereboom (1990), Bonjour (1998), Gardner (1999), Marshall (2014), and Allison (2015, 280). Proponents of this reading doubtlessly have many internecine disagreements (e.g. whether Kant's justification purports to refute the skeptic).

[167] For "internal" critiques of the traditional reading along these lines, see Hogan (2009) and Allais (2015). Even many proponents of the traditional reading concede that the resulting argument for categorial idealism is philosophically problematic. For instance, Strawson (1966, 244) and Guyer (1987, 369) take the resulting argument as a basis for discarding categorial idealism altogether.

principles), rather than around the earth (*pace* geocentric principles). So construed, this case is naturally construed as involving a *nomological* notion of explanation; *cognition why* a certain datum holds is gained by cognizing the datum from its ground via a law (or principle) that expresses their connection.

In the first part of our investigation, we will see how this nomological notion of explanation reflects Kant's: "To explain [*Erklären*] means to derive from a principle [*von einem Princip ableiten*], which one must therefore cognize distinctly and be able to provide." (AK 5:412). So construed, explanation lies at the very heart of the first *Critique*'s titular investigation of the faculty of reason and its capacity for rational cognition [*Vernunfterkentnnis*]. For as we will see, reason not only demands explanation, but its power to draw inferences enables it to explain. So on my *Copernican reading* of Kant's inference to the only possible explanation advanced below, reason takes the understanding's *a priori* cognition of categorial laws as a datum to be explained. A possible explanation would require cognition of the principle expressing the connection between this datum and its ground.

In the second part of our investigation, I will reconstruct Kant's oft-neglected derivation of (i) the space of candidate explanations of the understanding's *a priori* cognition of categorial laws and (ii) the conditions under which a candidate explanation would be possible.[168] As for (i), we will see that Kant's general constraints on cognition imply that *categorial idealism* and *categorial realism* provide two competing (and exhaustive) candidate explanations of the understanding's *a priori* cognition of categorial laws. Whereas categorial realism's principle takes the understanding's *a priori* representations of categorial laws to be grounded in nature, categorial idealism's principle takes the possibility of nature to be grounded in the understanding's *a priori* representations of categorial laws.

[168] Although some commentators both reject the traditional reading and are more sensitive to Kant's account of explanation (as I will construe it here), they have not pursued this kind of reconstruction.

So if Kant's inference to the only possible explanation is to succeed, he must show that categorial idealism alone provides a truly possible explanation.[169] As for (ii), since the possibility of these two candidate explanations requires *rational* cognition of their respective principles (for reasons clarified below), their possibility turns on the conditions under which rational cognition of a principle is possible. Gone neglected, we will see, is that Kant offers exactly two paths for attaining rational cognition of a principle: a *direct* path and an *indirect* path. Whereas the direct path requires inferring the principle from its ground, the indirect path requires inferring the principle from all the possible consequences of its ground.

In the third part of our investigation, I will use these neglected conditions from Kant's account of explanation to sketch a novel reconstruction of the Transcendental Deduction's inference to the only possible explanation of the understanding's *a priori* cognition of categorial laws. In brief, for reasons clarified below, Kant argues that the categorial realist principle cannot be rationally cognized via either the direct or indirect path. Given the exhaustiveness of these two paths, this argument entails that categorial realism fails to offer a possible explanation. And given the exhaustiveness of the categorial realist and categorial idealist explanations, categorial idealism alone remains—the cost of explaining the understanding's *a priori* cognition of categorial laws.

In section II, I draw upon Kant's nomological account of explanation to clarify what it would mean to explain the understanding's *a priori* cognition of categorial laws. In section III, I sketch how categorial idealism and categorial realism provide two competing and exhaustive candidate explanations here. The possibility of each explanation, I show, hinges on rational cognition of its respective principle. In section IV, I elucidate Kant's direct and indirect paths for attaining rational cognition of a principle. I reconstruct the Transcendental Deduction's arguments

[169] The idealist shift of taking objects to conform to our representations is earlier said to be necessary for "metaphysics, as rational cognition" (Bxvi). Cf. A126-30, B163-7, AK 4:297, AK 4:319-20, and AK 4:375-6n.

precluding the direct and indirect categorial realist explanations in sections V and VI, respectively. In section VII, I complete the argument's final step—categorial idealism remains as the only possible explanation. In section VIII, I conclude.

II. Explanation and the Riddle of Nature

At the center of Kant's notion of explanation are principles; to explain something involves deriving it from a principle (AK 5:412). What is a principle? Loosely speaking, any universal proposition (of the form *all Fs are Gs*) can act as a principle. But Kant denies that just any universal proposition is a principle:

> The term 'a principle' is ambiguous, and commonly signifies only a cognition that can be used as a principle even if in itself and as to its own origin it is not a principle. Every universal proposition, even if it is taken from experience (by induction) can serve as the major premise in a rational inference [*Vernunftschlusse*]; but it is not therefore itself a principle. (A300/B356, translation modified).

Properly speaking, a *principle* would express the connection between something and its *ground*, or *that in virtue of which* something holds. As Kant puts it in his metaphysics lectures: "That which contains the ground of something, is called a *principle*." (AK 28:522).[170] For instance, a causal principle would express something's connection to its causal ground, a geometric principle would express something's connection to its geometric ground, etc. Explanation therefore has a metaphysical dimension: to be explained, something must have a ground (whose connection is expressed in a principle).[171]

But Kant's notion of explanation also has a cognitive dimension: explanation involves cognizing the explanandum from its ground via the principle expressing their connection.

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[170] Cf. A148/B188, AK 9:110, AK 28:523-4, AK 28:356, AK 28:401-3, AK 29:747, AK 29:807, and AK 29:843-4. Kant's definition was hardly unprecedented. Wolff likewise says that "A *principle* [*principium*] is called that which contains the ground of something else in itself." (*Ontologia*, §866).

[171] This idea is adopted by many contemporary proponents of metaphysical laws, who themselves borrow from the famous deductive-nomological account of explanation. Cf. Wilsch (2016), Rosen (2017), and Schaffer (2017a). Indeed, explanation itself is sometimes construed as an ontic relation, e.g. when it is said that a ground explains what it grounds. For recent discussion of this point in Kant, see Willaschek (2018), Stang (2019), and Watkins (2021).

Explanation accordingly requires (i) cognizing the principle that expresses the connection between the explanandum and its ground ("which one must therefore cognize distinctly and be able to provide") and (ii) deriving the explanandum from its ground via a principle (AK 5:412). More on (i) in later sections. As for (ii), the derivation proceeds via the application of rules of inference. That is, from cognition of both a principle and the ground subsumed under it, the explanandum is derivable via the application of a rule of inference (modus ponens, modus tollens, etc.). Schematically, cognition of *Ga* (i.e. object *a*'s being *G*) would be derivable from cognitions of (i) the principle $\Box\forall x(Fx \rightarrow Gx)$ and (ii) *Fa* (via modus ponens). The principle in (i) expresses the universally necessary connection between *Gs* and their ground in *Fs*. (ii) provides the corresponding ground in this case.[172] Since this derivation proceeds from the ground of *Ga*, it would result in cognizing not merely *that Ga* holds, but *why* it holds. For instance, by deriving an empirical object's change in state from its causal ground, cognition is gained into *why* the change occurs (A411-4/B438-41).[173]

Since the cognitive dimension of explanation requires the application of rules of inference, explanation is inextricably tied to the faculty of reason. For Kant cashes out cognition in terms of distinct cognitive faculties.[174] And essential to reason is the power to employ logical rules of inference: "Reason, considered as the faculty of a certain logical form of cognition, is the faculty of inferring, i.e., of judging mediately (through the subsumption of a condition of a possible judgment under the condition of something given)." (A330/B386). From cognition of a universal proposition (such as a principle) and cognition of something that satisfies it, reason can cognize whatever follows by applying rules of inference (modus ponens, modus tollens, etc.) (A304/B360-1).[175] By

[172] Cf. AK 9:52-3, AK 24:107, AK 24:285, and AK 24:935.
[173] Insofar as grounds play this cognitive role, Kant calls them *grounds of explanation* [*Erklärungsgründe*]. Cf. A562/B590, A772/B800, AK 4:353, and AK 20:237. Kant sometimes uses the term "ground" more generally to describe *any* inferential base, regardless of whether what is inferred holds in virtue of it (A303-4/B359-60). I will continue to have a more stringent sense of *ground* in mind below—a ground is that *in virtue of which* something else holds. Kant sometimes calls grounds in this sense *antecedently determining* grounds (AK 28:399). Explanation requires grounds in this sense.
[174] For recent discussion of this idea, see Schafer (2019) and Tolley (2020).
[175] Cf. B4, A91-2/B124, A304-7/B360-1-4, A646-7/B674-5, A713-4/B741-2, and A837/B865.

extension, reason's power to draw inferences enables it to cognize something from its ground via a principle, and thus enables reason to explain.[176]

Other cognitive faculties accordingly lack the capacity for explanation to the extent that they lack the power to draw inferences. To wit, the understanding merely has the power to draw *immediate* inferences (A303/B360). An *immediate* inference is one that does not involve a mediating third proposition. For instance, inferring from *all Xs are Ys* to *no Xs are not Ys* would be an immediate inference, since the inferential base includes only one proposition. Yet unlike reason, the understanding lacks the power to draw *mediate* inferences, which involve a mediating third proposition. The understanding would therefore be unable to derive something from a principle via modus ponens, modus tollendo ponens, etc.—and to that extent would be incapable of explanation. So just as the understanding without intuition is said to be *blind*, the understanding without reason can be said to be *half-witted*. Although the understanding can cognize *that* something is so, it is largely unable to cognize *why* anything is so.

Given that reason's cognitive powers make it uniquely suited for explanation, explanation can be treated as a kind of rational cognition. And indeed, Kant repeatedly describes rational cognition as cognition from principles, or "*cognitio ex principiis*" (A836/B864).[177] Not only is the faculty of reason capable of explanation (so construed), but explanation is a core aim of this faculty; reason asks *Why* and aims to grasp its *Because*. As Kant puts it: "This is a demand of reason, which declares its cognition to be determined a priori and necessary either as it is in itself—in which case it needs no grounds—or else—if it is derived—as a member of a series of grounds that is itself

[176] Insofar as reason's application of rules of inference occurs independently of experience, rational cognition is a form of *a priori* cognition. This point has been noted by, among others, Adams (1994), Hogan (2009), and Smit (2009). Different degrees of *a prioricity* here may be distinguished based upon whether reason's inferential base consists of premises cognizable *a priori* (e.g. mathematical principles) or merely empirically (e.g. empirical causal laws). For our purposes, these distinctions can be bracketed. Cf. A300-2/B356-8, A330/B386-7, A713-4/B741-2, A836-7/B864-5, A840/B868, and AK 9:64-65.

[177] Cf. A299-302/B356-8, A330/B386-7, A713-4/B741-2, A840/B868, AK 9:64-65, AK 16:95, AK 18:417-8, AK 24:50, AK 24:539, and AK 24:730-1.

unconditionally true." (A332/B389).[178] Different degrees of rational cognition accordingly can be distinguished by the degree of explanation they furnish. "To cognize the *thing from reason*" Kant says in his logic lectures, "from universal principles according to its grounds, is called *having* insight [*einsehen perspicere*]. Hence…to have insight *a priori* is to cognize not only that it is so (as, e.g. dissolution of salt by water) but that it must be so (e.g. a solar eclipse (mathematically) [even if we have not seen it]. The last step is to comprehend [*begreifen*], to have insight into something sufficiently." (AK 24:730-1).[179]

So *pace* the traditional reading's construal of explanation as mere justification, this outline of Kant's account of explanation highlights that explanation is far more demanding—it requires cognition *why* (and not merely *that*) something holds. For instance, even if I know that an omniscient and omnibenevolent oracle has told me that *p* is true (and so I come to form a highly justified belief that *p* is true), no explanation of *p*'s truth is thereby won. For I still have no grasp on *why p* is true.[180] What's more, by neglecting the fact that explanation amounts to a form of rational cognition, the traditional reading neglects the *Critique of Pure Reason*'s titular project. For this project purports to assess the possibility of rational cognition; it would provide "a critique of the faculty of reason in general, in respect of all the cognitions after which reason might strive independently of all experience, and hence the decision about the possibility or impossibility of a metaphysics in general, and the determination of its sources, as well as its extent and boundaries, all, however, from principles." (Axii).[181] Indeed, Kant repeatedly construes philosophical cognition itself as a form of

[178] Cf. A307-8/B364-5, A326/B383, A416/B444, and A515/B543.
[179] Cf. A333-5/B390-2, AK 4:459, AK 9:65, AK 16:343-4, AK 16:95, AK 18:417-8, AK 24:50, and AK 24:539. For recent discussion of these varying degrees of explanation, see Schafer (2019) and Tolley (2020).
[180] One might claim that explanation (so construed) amounts to a special kind of justification. Even if this claim were correct, explanation is still far more demanding than how proponents of the traditional reading have construed it. This is why I contrast explanation with *mere* justification.
[181] Cf. Axi-Axii, Bxii-Bxvi, A11/B24-5, A13/B27, A761/B789, and A836-7/B864-5.

rational cognition. Philosophy aims to rationally cognize not merely *that* something is so, but the grounds for *why* it is so.[182]

With this outline of Kant's account of explanation in hand, we can now shed light on the "riddle" that kicks off his inference to categorial idealism. As he puts it:

> **[1]** Categories are concepts that prescribe laws a priori to appearances, thus to nature as the sum total of all appearances (natura materialiter spectata), and, **[2]** since they are not derived from nature and do not follow it as their pattern (for they would otherwise be merely empirical), **[3]** the question now arises how it is to be comprehended [*wie es zu begreifen sei*] that nature must follow them, i.e., how they can determine a priori the combination of the manifold of nature without deriving from the latter. Here is the solution to this riddle. (B163, numbering added).[183]

In clauses **[1]** and **[2]**, the riddle begins by already supposing that categorial laws are cognizable *a priori* by the understanding. He purported to establish this thesis earlier in the Transcendental Deduction. His argument for this thesis is undoubtedly worthy of scrutiny; it involves a notoriously complex interplay between sensibility, the understanding, and the conditions on possible experience. But if, by this stage, the understanding's *a priori* cognition of categorial laws is treated as a *fait accompli*, what question remains?

Having now distinguished the understanding's cognitions from reason's, the remaining question becomes apparent. The understanding's *a priori* cognition of categorial laws cries out for explanation: how can these laws be cognized by the understanding independently of experience, despite being universally valid for all objects of experience? Reason accordingly demands to explain this, viz. by deriving the understanding's *a priori* cognition of categorial laws from its ground. And this is precisely the issue identified in clause **[3]**: "how it is to be comprehended that nature must

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[182] Cf. A11-3/B24-6, A713/B741, A724/B752, A758-9/B786-7, A762/B790, A841/B869, and A850/B878. This construal of philosophy echoes Kant's German rationalist predecessors. As Wolff puts it: "Philosophical cognition is rational. Who is truly instructed in philosophical cognition perceives the ground of that by which something is or is produced (§6 *Disc. Praelim.*), and therefore the connection of both coexisting and mutually successive things (§10 *Cosmologia*), consequently of true universal propositions or of universal truths (§505 *Logica*). Philosophical cognition is therefore rational (§483)." (*Psychologia Empirica* §499). Cf. Crusius' *Entwurf* §15 and *Weg* §4.
[183] Cf. A125-7, B163-8, and AK 4:418-22.

follow them [categorial laws]." Recall that, as a form of explanation, comprehension is won by and for the faculty of reason: "Concepts of reason serve for comprehension [*Begreifen*], just as concepts of the understanding serve for understanding (of perceptions)." (A311/B367). To comprehend something, reason must cognize it from its ground.[184]

So *pace* the traditional reading, the riddle prompting Kant's inference to the only possible explanation plausibly does not concern whether the understanding's *a priori* cognition of categorial laws is fully justified. Rather, just as reason takes the observed planetary motions as a datum crying out for explanation, reason likewise takes the understanding's *a priori* cognition of categorial laws—as something to be rationally cognized from its ground.[185] Categorial rationalism (as construed in section I) captures this idea. It contains the following two assumptions: (i) the understanding has *a priori* cognition of categorial laws and (ii) such cognition admits of an explanation.

Although both assumptions are highly substantive, the present investigation will not try to establish them. As for the first assumption, the aim of our investigation is to reconstruct Kant's inference from the explanandum to its explanans (rather than defending the legitimacy of the explanandum itself). So even if the Transcendental Deduction's earlier argument for the first assumption fails (as many of Kant's readers have concluded), our investigation could still uncover a highly substantive conditional connection: if the understanding had *a priori* cognition of categorial laws, categorial idealism offers the only possible explanation of it. Now unlike the first assumption, the second assumption is not even explicitly defended in the Transcendental Deduction itself. I will conclude this section by briefly pointing towards one strand of Kant's rationale for it.

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[184] Kant directly frames this demand earlier in terms of explanation (B159-60).

[185] In the *Prolegomena*'s parallel discussion, Kant likewise first concludes that the understanding has *a priori* cognition of categorial laws (AK 4:319). Yet this does not settle wherein the ground ("cause") of the understanding's *a priori* cognition of categorial laws lies. This is subsequently raised as a further question: "Such agreement, and indeed necessary agreement, between the principles of possible experience and the laws of the possibility of nature, can come about only from one of two causes […]" (AK 4:319). Cf. A127-8.

If the understanding's *a priori* cognition of categorial laws was not explicable, our reason may begin to doubt whether the understanding has such cognition at all. As Kant says:

> We are really in possession of synthetic a priori cognition, as is established by the principles of understanding, which anticipate experience. Now if someone cannot even make the possibility of these comprehensible to himself [*begreiflich machen*], he may certainly begin to doubt whether they are really present in us a priori […] (A762/B790).[186]

Among other unwelcome consequences, reason's doubt would be disastrous for natural science. For Kant holds that the explanations offered by natural science presupposes rational cognition of categorial laws. Once armed with cognition of categorial laws, reason can rightfully demand that any empirical connections in nature must conform to these laws. For instance, reason's cognition of the categorial law that *every alteration in nature has a cause* allows reason to demand a cause for each alteration in nature that comes before it. The success of natural science in reaching further cognitions premised on this demand cannot be reasonably doubted, by Kant's lights.[187] So on pain of casting doubt on what is beyond reasonable doubt, an explanation of the understanding's *a priori* cognition of categorial laws must *somehow* be possible—precisely as categorial rationalism claims. The question now is to spell out *how*.

III. The Space of Candidate Explanations

To reconstruct Kant's inference to categorial idealism as the only possible explanation of the understanding's *a priori* cognition of categorial laws, we must first situate categorial idealism within the space of candidate explanations. Since the explanandum here is a cognition, a candidate explanation must furnish a principle that specifies the ground of this cognition. So to situate categorial idealism within the space of candidate explanations, we must clarify both (i) the salient general conditions that Kant places on cognition and (ii) the candidate explanations of the

[186] Cf. A307/B363-4.
[187] Cf. Bxii-xiv, B4, AK 4:294-5, AK 4:327, and AK 4:473-6. See Friedman (2013) for detailed discussion.

understanding's *a priori* cognition of categorial laws that would enable these conditions to be satisfied.

To this end, I will assume the following two general constraints on cognition. First, cognitions "consist in the determinate relation of given representations to an object." (B137). That is, for a representation of a certain object to amount to a cognition, it must successfully refer to the object represented.[188] Second, the representation of an object successfully refers to the object represented (henceforth: "the object") only if the representation stands in a necessary relation to the object. Without a necessary relation, the representation in question may in fact refer to some other object or fail to refer to any object at all (A92/B124-5).[189] A full defense of my reconstruction of Kant's inference to the only possible explanation would undoubtedly have to defend these two general constraints on cognition. But I will simply assume them here on textual and reconstructive grounds.

These two general constraints jointly entail that a representation of an object amounts to a cognition only if the representation stands in a necessary relation to its object. By extension, a candidate explanation of the understanding's *a priori* cognition of categorial laws would have to identify the ground in virtue of which the understanding's *a priori* representation of a categorial law stands in a necessary relation to its object. Now Kant takes categorial laws to be *synthetic*. As synthetic, categorial laws would not hold on pain of contradiction. For instance, given that the categorial law *every alteration in nature has a cause* is synthetic, no contradiction would result if some alterations in nature lacked a cause (A258-60/B313-5).[190] So to further clarify the space of candidate

[188] Cf. A51/B75-6, A78/B103, B149-50, A246, and A258/B314. For recent discussion, see Allais (2015), Grüne (2017), and Watkins and Willaschek (2017). I am setting aside Kant's occasional talk of false cognitions. I take it that false cognitions are no more cognitions than open secrets are secrets.
[189] As we will see momentarily, this necessary relation can run either from the object to the representation or from the representation to the object.
[190] I leave Kant's rationale for the syntheticity of categorial laws for discussion elsewhere. Though for more recent discussion, see Watkins (2005), Hogan (2013), Anderson (2015), and Stang (2016).

explanations of the understanding's *a priori* cognition of categorial laws, we must specify the possible grounds in virtue of which a synthetic representation would stand in a necessary relation to its object. By doing so, we will come to see how Kant arrives at categorial idealism and categorial realism as the only two candidate explanations of the understanding's *a priori* cognition of categorial laws.

In setting up the Transcendental Deduction, Kant alleges that this necessary relation could only be grounded ("made possible") in one of the following two ways:

> There are only two possible cases in which synthetic representation and its objects can come together, necessarily relate to each other, and, as it were, meet each other: Either when the object makes possible the representation, or when the representation alone makes possible the object. (A92/B124-5, translation modified).

In the first case, "the object makes possible the representation." That is, the object ("α") grounds the representation of it in some cognitive faculty F ("$R(\alpha)_F$").[191] In grounding the representation, the object comes to stand in a necessary relation to it. In other words, the representation is necessitated by *and in virtue of* its object. A bit more formally:

Object-First Scheme

(i) $\alpha \rightarrow R(\alpha)_F$

(ii) α

$\therefore R(\alpha)_F$

The principle in (i) expresses the connection of grounding running from α to $R(\alpha)_F$. (ii) simply affirms that the ground (viz. α) holds. So whenever an instance of this scheme is sound, the representation in question is true because the object it represents makes it true. For instance, if the sun's diameter is almost 1.4 million kilometers ("α") and α brings about the synthetic representation

[191] What sort of object is designated by "α" can vary; it might be a thing, a property, a state of affairs, etc. But given that the representation $R(\alpha)_F$ (as synthetic) is truth-apt, α must somehow map onto it. For instance, if α is a thing, α might map onto the synthetic representation that *thing x exists*. If α is a property, α might map onto the synthetic representation *property F is instantiated*, etc. See Stang (2016) for discussion.

that *the sun's diameter is almost 1.4 million kilometers to cognitive faculty F* ("$R(\alpha)_F$"), α would ground the truth of this synthetic representation.

In the second case, by contrast, "the representation alone makes possible the object." That is, the representation of the object in some cognitive faculty ("$R(\alpha)_F$") grounds the possibility of the object itself ("α"). In grounding the possibility of the object, the representation comes to stand in a necessary relation with it. In other words, the possibility of the object is necessitated by and *in virtue of* the representation of it. A bit more formally:

Representation-First Scheme

(i) $R(\alpha)_F \rightarrow \alpha$

(ii) $R(\alpha)_F$

$\therefore \alpha$

The principle in (i) expresses the connection of grounding running from $R(\alpha)_F$ to α. (ii) simply affirms that the ground (viz. representation $R(\alpha)_F$) holds. So whenever an instance of this scheme is sound, the representation in question is true *because* it brings its object into conformity with it.[192]

Given that these two schemes are exhaustive (as Kant alleges above), a candidate explanation of a synthetic cognition would have to map onto one of them. How, then, do the categorial realist and categorial idealist explanations of the understanding's (synthetic) *a priori* cognition of categorial laws map onto these two schemes? The answer hinges on how categorial laws fit into the above two schemes. Kant takes laws to be representations, rather than objects: "Now, however, the representation of a universal condition in accordance with which a certain manifold (of whatever kind) can be posited is called a rule, and, if it must be so posited, a law." (A113). It is only because laws are representations that it makes sense for him to characterize them as synthetic (objects

[192] Kant immediately clarifies that the mere representation of an object cannot ground the existence of the object, but only makes the object possible (A92/B125). This qualification will be implicit below.

themselves cannot be synthetic or analytic). Specifically, laws provide universal representations of necessary connections ("of whatever kind"). For instance, the law *salt dissolves in water* would represent a necessary connection between *being salt* and *being water*. Although the necessary connections represented by the law would indeed hold among objects, the law itself would still be a representation. This representational view of laws is not inherently idealist. For if a law were true in virtue of the necessary connections represented by it (per the object-first scheme), these necessary connections would still exist independently of the law's representation of them.[193]

Supposing, then, that categorial laws are synthetic representations (as Kant does), they would fit into the representation slot in the above two inference schemes ("$R(\alpha)_F$"). Categorial realism and categorial idealism would therefore agree that a categorial law is a synthetic representation whose corresponding object consists in necessary connections in nature falling under the law. Their disagreement comes down to which of the above inference schemes captures the ground of the necessary relation between the representation and its object, and thus which scheme explains why these representations amount to cognitions.

On the one hand, *categorial idealism* claims that the possibility of necessary connections among objects in nature is grounded in the very fact that the understanding's categorial laws represent any possible object in nature as standing in those connections. So insofar as the understanding cognizes the categorial law *all Fs are Gs*, any possible *F* in nature is necessarily a *G* if (and because) the understanding represents this law. In precisely this sense, the understanding would prescribe (or legislate) categorial laws to nature: "The understanding is thus not merely a faculty for making rules through the comparison of the appearances; it is itself the legislation for nature, i.e., without

[193] The representational view of laws was also explicitly endorsed by many of Kant's German rationalist predecessors. Cf. Crusius (*Weg*, §360), and Baumgarten (1757, §83). On some contemporary views (e.g. Maudlin's 2007), it is perhaps more accurate to characterize laws as object-like, rather than as truth-apt representations. I will have to bracket consideration of such views here.

understanding there would not be any nature at all." (A126).[194] The categorial idealist explanation therefore construes the ground of the understanding's *a priori* cognition of categorial laws using the representation-first scheme. Stated more formally, let "$R(\alpha)_{Und}$" stand for *the understanding's representation of some categorial law* and "α" stand for any possible necessary connection among objects in nature represented by the law. Then:

Categorial Idealism's Representation-First Scheme

(i) $R(\alpha)_{Und} \rightarrow \alpha$

(ii) $R(\alpha)_{Und}$

$\therefore \alpha$

More on categorial idealism in section VII. So construed, categorial idealism is neutral about other issues that divide interpretations of Kant's transcendental idealism (e.g. the relationship between things in themselves and appearances).

On the other hand, *categorial realism* claims that necessary connections among objects in nature hold independently of the understanding's representation of categorial laws. So insofar as the understanding cognizes the categorial law *all Fs are Gs*, it represents this law if (and because) any possible *F* in nature must be a *G*. As the A Deduction puts it, "if it [the unity of nature— JS] were given in itself independently of the primary sources of our thinking […] in this case one would have to borrow them ["synthetic propositions of such a universal unity of nature"— JS] from the objects of nature itself." (A114). The categorial realist explanation therefore construes the ground of the understanding's *a priori* cognition of categorial laws using the object-first scheme. More formally:

Categorial Realism's Object-First Scheme

(i) $\alpha \rightarrow R(\alpha)_{Und}$

(ii) α

[194] Cf. B163-4 and AK 4:320.

$\therefore R(\alpha)_{Und}$

Kant is frustratingly silent in the Transcendental Deduction about how the categorial realist in turn construes the ground of necessary connections among objects in nature. His silence suggests that his qualms with categorial realism run deeper; they hold regardless of how exactly this ground is construed. My reconstruction below will try to make good on this suggestion.[195]

In short, then, the representation-first scheme is occupied by categorial idealism and the object-first scheme is occupied by categorial realism. Given this and given Kant's above assumption that the representation-first scheme and the object-first scheme provide exhaustive candidate explanations of synthetic cognition ("There are only two possible cases in which synthetic representation and its objects can come together"), categorial idealism and categorial realism provide exhaustive candidate explanations of the understanding's *a priori* cognition of categorial laws. To put this result more formally:

(2) Exhaustiveness premise: if the understanding's *a priori* cognition of categorial laws admits of an explanation, either the categorial idealist explanation holds or the categorial realist explanation holds.[196]

Combined with the assumption that the understanding's *a priori* cognition of categorial laws admits of some explanation (per categorial rationalism), it follows that one of these two explanations must hold. Kant's inference to the only possible explanation therefore now comes down to the possibility

[195] Kant sometimes suggests that, for the categorial realist, the possibility of necessary connections among objects in nature would be grounded in the very essence of an object in nature. He briefly describes this later as "a unity of nature that is recognized not only empirically but also a priori, though still indeterminately, and hence as following from the essence of things." (A693/B721). On this essentialist view, it follows from the very essence of being an object in nature that an object in nature must stand in certain kinds of necessary connections. This essence would thereby ground the truth of categorial laws for all possible objects in nature. Schematically, if being a *G* is essential to being an object in nature, it would be a categorial law that any possible object in nature is a *G*. To illustrate, suppose it is essential to being an object in nature that its alterations have a cause. This would ground the truth of the categorial law *every alteration in nature has a cause*. Cf. AK 4:319-21. This essentialist view of categorial laws would be broadly analogous to an essentialist account of empirical laws, which some have attributed to Kant himself. Cf. Stang (2016), the essays in Massimi and Breitenbach (2017), and Watkins (2019).

[196] The bolded numbered claims provide premises in the full reconstruction of Kant's argument presented in section VII.

of each explanation. By ruling out the possibility of the categorial realist explanation and ruling in the possibility of the categorial idealist explanation, it would follow that categorial idealism provides the only possible explanation of the understanding's *a priori* cognition of categorial laws.[197]

How, then, are we to settle whether either of these candidate explanations offers a possible explanation? The answer comes back to Kant's core characterization of explanation. To offer a possible explanation, the principle used in the candidate explanation must be cognizable (AK 5:412). From where could cognition of such a principle be drawn? Crucially, the explanandum in the present case (viz. the understanding's *a priori* cognition of categorial laws) constrains the source of that cognition. These laws constitute the understanding's basic principles. They therefore cannot be derived from more basic principles of the understanding. As Kant puts it: "*A priori basic principles* [*Grundsätze a priori*] bears this name not merely because they contain in themselves the grounds of other judgments, but also because they are not themselves grounded in higher and more general cognitions. Yet this property does not elevate them beyond all proof." (A148/B188, translation modified). Because categorial laws cannot be derived from more basic principles of the understanding, the understanding cannot be the source of cognition of the principles used to explain its own *a priori* cognition of categorial laws.

Instead, cognition of these principles must fall to reason itself ("Yet this property does not elevate them beyond all proof").[198] Accordingly, categorial realism would provide a possible explanation of the understanding's *a priori* cognition of categorial laws only if the categorial realist principle ($\alpha \rightarrow R(\alpha)_{Und}$) is rationally cognizable. Likewise, the categorial idealism would provide a

[197] The exhaustiveness premise is perhaps philosophically questionable. Why couldn't the understanding's *a priori* representation of a categorial law and its object be brought into necessary relation by a common ground of both? Since the exhaustiveness premise was derived from Kant's constraints on cognition, such questions are properly directed at these constraints. As noted above, I am leaving a defense of these constraints for elsewhere.

[198] Cf. A734-8/B762-6 and A782-7/B810-5. This should be unsurprising, given Kant's construal of transcendental proofs as an activity of reason (A782/B810) and of philosophical cognition (including a critique of pure reason) as pure rational cognition (A841/B869).

possible explanation of the understanding's *a priori* cognition of categorial laws only if the categorial idealist principle ($R(\alpha)_{Und} \rightarrow \alpha$) is rationally cognizable. So under what conditions is rational cognition of a principle possible? Assessing the possibility of these two candidate explanations now turns on this question.[199]

IV. Rational Cognition of a Principle: The Direct Path and Indirect Path

Although Kant's general account of cognition continues to receive much attention, his conditions on rational cognition of principles have remained largely neglected.[200] "To reconstruct Kant's inference to the only possible explanation, we must now fill this lacuna. Since rational cognition runs through inferences (as we saw in section II), rational cognition of a principle requires inferring it from something else. Schematically, rational cognition of principle P turns on completing the following inference scheme:

Rational Cognition of a Principle?

(i) $? \rightarrow P$

(ii) ?

$\therefore P$[201]

How, then, is this inference scheme to be completed; what could provide the requisite inferential base for inferring a principle (filling in the "?")?

[199] The categorial realist and idealist principles do not purport to explain the understanding's *a priori* cognition of some individual categorial law, but only the general form of such cognition. An explanation of the understanding's *a priori* cognition of some individual categorial law would require considering the law's individual elements—a task that Kant takes up in the Analytic of Principles. I will not take up this task here. For the sake of illustration, however, it will occasionally prove helpful to consider individual categorial laws below.

[200] For instance, an important recent exchange about Kant's general account of cognition focused almost exclusively on cognition of things and their properties. Cf. Watkins and Willaschek (2018), Grüne (2018), and Chignell (2018). Insofar as conditions on rational cognition of principles are discussed, it tends to concern particular kinds of rational cognition (e.g. geometric or scientific cognition).

[201] On the categorial realist explanation, "P" would denote $\alpha \rightarrow R(\alpha)_{Und}$. On the categorial idealist explanation, "P" would denote $R(\alpha)_{Und} \rightarrow \alpha$.

The answer must respect the two general constraints on cognition from section III. As we saw, these two constraints entail that a representation amounts to a cognition only if it stands in a necessary relation to its object. Combined with reason's inferential nature, this yields the following condition on rational cognition: reason's representation of a principle amounts to a cognition only if reason infers the principle from *something that necessitates the principle's truth*—filling in the "?" above.[202] Now although widely neglected, the first *Critique* outlines exactly two paths for satisfying this condition, and thus two paths for completing the above inference scheme: a direct path and an indirect path. The possibility of the categorial realist and categorial idealist explanations will consequently turn on the possibility of these two paths.

The direct path infers the principle from its (sufficient) ground. Since reason's representation of a principle amounts to a rational cognition only if the principle is inferred from something that necessitates its truth and since the principle's ground necessitates its truth, a principle is apt to be rationally cognized from its ground via the direct path.[203] As Kant describes this path, "The direct or ostensive proof is, in all kinds of cognition, that which is combined with the conviction of truth and simultaneously with insight into its sources." (A789/B817). This path is *direct* because by inferring a principle from its ground, it is directly shown why that principle holds. The direct path thereby enables "comprehensibility of the truth in regard to its connection with the grounds of its possibility." (A789/B817). If "α*" denotes the sufficient ground of principle P, the direct path can be stated as follows:

The Direct Path

(i) $\alpha^* \rightarrow P$

[202] Cf. A789-91/B817-9, AK 9:70-1, AK 9:82, 24:38, AK 24:145, AK 24:195-7, AK 24:433, AK 24:441, AK 24:452-3, AK 24:530, AK 24:541, AK 24:544, AK 24:554-5, AK 24:586-7, AK 24:723-4, AK 24:732-5, AK 24:644-5, AK 24:742-3, and AK 24:879-84.

[203] I will assume that the grounds involved in both paths necessitate what they ground. For more on Kant's view that *non-necessitating* sufficient grounds would not enable rational cognition of what they ground, see Hogan (2009).

(ii) α^*

$\therefore$ P

That is, from cognition of both (i) the principle that expresses the connection between α^* and P ($\alpha^* \rightarrow$ P) and (ii) α^* itself, P would be rationally cognizable.

Yet Kant acknowledges that attaining rational cognition of a principle through the direct path will prove impossible when the principle's ground (α^*) cannot be directly cognized. This is where the indirect path steps in. The indirect path infers the principle from all the possible consequences of the principle's ground. As Kant clarifies:

> If the grounds from which a certain cognition should be derived are too manifold or lie too deeply hidden, then one tries whether they may not be reached through their consequences. Now modus ponens, inferring the truth of a cognition from the truth of its consequences, would be allowed only if all of the possible consequences are true; for in this case only a single ground of this is possible, which is therefore also the true one. (A790/B818).

If "Γ" designates a sum total that contains all of the possible consequences of principle P's ground, the indirect path can be stated as follows:

<u>The Indirect Path</u>

(i) $\Gamma \rightarrow^{-} P$

(ii) Γ

$\therefore$ P[204]

[204] Unlike the other inference schemes introduced above, the "→" here does not represent a grounding relation, but only a relationship of entailment. For it is in fact P's ground that grounds Γ. The minus sign is indexed to "→" above to indicate this. A further question is what exactly the notion of a sum total (used to collect together all the possible consequences) amounts to. Fortunately, nothing below hinges on settling this issue.

This raises the following two questions. Why can a principle's ground be rationally cognized from *all* its possible consequences? And why can't a principle's ground be rationally cognized from *merely some* of its possible consequences?

As for the former question: Kant's background assumption is that a ground is individuated by all its possible consequences. Two grounds cannot share exactly the same possible consequences, lest those two grounds simply be identical to one another. As he tersely puts it, "Grounds, however, which agree in all of their consequences are not distinct grounds, but rather one and the same ground." (AK 24:221). Since a ground is individuated by all its possible consequences, a particular ground is necessitated by all its possible consequences. As Kant suggests above, "if all of the possible consequences are true […] only a single ground of this is possible, which is therefore also the true one." By extension, a principle necessitated by its ground would be necessitated by all the possible consequences of its ground. What does this point mean for rational cognition? Since reason's representation of a principle amounts to a rational cognition only if the principle is inferred from *something that necessitates the principle*, it means that a principle is apt to be rationally cognized from all the possible consequences of its ground. To illustrate, suppose that all the possible consequences of a hypothetical magnetic force, M, were contained in sum total Γ. Suppose also that M grounds principle P: *bodies influenced by F attract and repel each other in such-and-such ways*. Since a ground is individuated by all its possible consequences, cognition of Γ would suffice to infer the existence of their ground in M. And since M *ex hypothesi* is a sufficient ground of principle P, P would be rationally cognizable from Γ—precisely as the indirect scheme says.

As for the latter question: since a ground is individuated by all its possible consequences, two distinct grounds can still share *nearly all* the same consequences. So anything short of all the possible consequences of a principle's ground would fail to necessitate that ground, and *a fortiori* would fail to necessitate the principle through its ground. What does this point mean for rational cognition? Since

reason's representation of a principle amounts to a rational cognition only if the principle is inferred from something that necessitates the principle, this point means that a principle cannot be rationally cognized from consequences by anything short of all the possible consequences of its ground. As the Jäsche Logic puts it: "From the consequence, then, we may infer to a ground, but without being able to determine this ground. Only from the sum total of all consequences can one infer *to a determinate ground,* infer that it is the true ground." (AK 9:52, translation modified). And this, again, is precisely how Kant characterizes the indirect path above (A790/B818).[205]

The larger upshot is that a principle can be rationally cognized from its ground through the following two paths: from cognition of either (i) the principle's ground (per the direct path) or (ii) all the possible consequences of the principle's ground (per the indirect path). And lest the truth of principle P already be presupposed (e.g. by deriving P from its conjunction with something else), Kant maintains that its truth is *only* necessitated through its ground. So given the above assumption that a principle can be rationally cognized only from something that necessitates its truth, the direct and indirect paths provide the *only* two paths through which a principle can be rationally cognized (A789-91/B817-9).

And lest one think these two paths are orthogonal to the Transcendental Deduction's argument for categorial idealism, they are briefly indicated in its foregrounding discussion:

> the criterion [*Kriterium*] of a hypothesis is also the intelligibility of the assumed ground of explanation or its unity (without auxiliary hypotheses), the truth (agreement with itself and with experience) of the consequences that are derived from it, and finally the completeness of the ground of explanation of these consequences, which do not refer us back to anything more or less than was already assumed in the hypothesis […] (B115).

[205] Cf. B113-115, A647/B675, AK 16:260, AK 24:439-40, AK 24:476, and AK 24:827. From some non-complete sum total of consequences, a particular ground might be inferred as the best explanation. For instance, gravity might furnish a better explanation for a non-complete collection of observed motions than schgravity (where *schgravity* is defined as operating just like gravity, except in some distant solar system of which we lack cognition). Even granting this, an inference to the best explanation would not result in rational cognition, insofar as a non-complete collection fails to necessitate a particular ground (A790-1/B818-9). For this reason, Kant holds that only a weaker attitude (such as *assumption*) is warranted towards the best explanation whenever several explanations remain open (A673-86/B701-14). Now if Harman (1965) is right that inferences to the best explanation can yield knowledge, rational cognition (so construed) would be even more demanding than knowledge. I leave this point for discussion elsewhere.

The "criterion of a hypothesis" (*the hypothesis* being the principle P in question) is "the intelligibility of the assumed ground of explanation" for that hypothesis. Its intelligibility, in turn, involves "the truth of the consequences that are derived from it" and "the completeness of the ground of explanation of these consequences." For only these would "refer us back to" the ground of the hypothesis in question. As we have just seen, the two paths above each make good on this criterion—the direct path does so by inferring the principle directly from its ground; the indirect path, from all the possible consequences of its ground.

The possibility of the categorial realist and categorial idealist explanations now turns on these two paths. If both paths are foreclosed on categorial realism and (at least one) path remains open on categorial idealism, categorial idealism would provide the only possible explanation of the understanding's *a priori* cognition of categorial laws. The ensuing sections will accordingly start with categorial realism. *Indirect categorial realism* (as I will call it) takes the indirect path; *direct categorial realism* takes the direct path. The next two sections will reconstruct the Transcendental Deduction's arguments foreclosing indirect categorial realism and direct categorial realism, respectively.

These two arguments can be fruitfully conceived in the image of Kant's antinomies. In the Antinomies chapter, two opposing (and exhaustive) transcendental realist views each advance an argument against the other view. From the soundness of these arguments against the opposing transcendental realist view, Kant rules out transcendental realism altogether—concluding that the empirical world is not comprised of things in themselves (A503-7/B531-5).[206] Likewise, given the exhaustiveness of the direct and indirect paths, the soundness of Kant's arguments against indirect categorial realism and direct categorial realism would rule out any categorial realist explanation. In short, then, the soundness of these two arguments would yield the following:

[206] For discussion, see Malzkorn (1999), Willaschek (2018), and Jauernig (2021).

(3) Antinomy premise: no categorial realist explanation of the understanding's *a priori* cognition of categorial laws (direct or indirect) is possible.

Per the overarching aim of this investigation, I do not aim to defend the soundness of these two arguments here. Using Kant's conditions on explanation just sketched, I merely aim to render them *tractable*—logically valid and not obviously unsound.

V. Against Indirect Categorial Realism

Using the indirect path, rational cognition of *the categorial realist principle* ($\alpha \rightarrow R(\alpha)_{Und}$) would have to run through *cognition of all the possible consequences of the categorial realist principle's ground* (Γ). Schematically:

Indirect Categorial Realism

(i) $\Gamma \rightarrow^{-} [\alpha \rightarrow R(\alpha)_{Und}]$

(ii) Γ

$\therefore \alpha \rightarrow R(\alpha)_{Und}$

As we will now see, the crux of the Transcendental Deduction's argument against indirect categorial realism is directed against (ii): it is not possible to cognize Γ, and thus not possible to cognize the categorial realist principle from it.

So to flesh out this argument, we must first clarify the consequences contained in Γ. A possible consequence of the categorial realist principle is, by transitivity, a possible consequence of the categorial realist principle's ground—and thus would be contained in Γ. Since the categorial realist principle expresses the understanding's *a priori* cognition of categorial laws (in relation to its ground) and since categorial laws are strictly universal (i.e. all possible objects in nature must conform to them), the possible consequences of the categorial realist principle would have to

include cognition of the conformity of all possible objects in nature to categorial laws.[207] By transitivity, the consequences of the categorial realist principle's ground (contained in Γ) would include cognition of the conformity of all possible objects in nature to categorial laws. Given this and given that indirect categorial realism requires cognition of Γ to infer the categorial realist principle's ground, indirect categorial realism requires cognition of the conformity of every possible object in nature to categorial laws.

At this juncture, Kant concludes that indirect categorial realism falls short: it is impossible to cognize the conformity of all possible objects in nature to a categorial law. As the first *Critique* later recalls, reason's use here is "is not properly constitutive, that is, not such that if one judges in all strictness the truth of the universal rule assumed as a hypothesis thereby follows; for how is one to know all possible consequences, which would prove the universality of the assumed principle if they followed from it?" (A647/B675). The Transcendental Deduction expands upon this line of reasoning. "If it [nature] were given in itself independently of the primary sources of our thinking," Kant says in the A Deduction,

> Then **[C]** I would not know whence we should obtain the synthetic propositions of such a universal unity of nature, since in this case **[1]** one would have to borrow them from the objects of nature itself. But **[2]** since this could happen only empirically, **[3]** from that nothing but merely contingent unity could be drawn, **[4]** which would fall far short of the necessary connection that one has in mind when one speaks of nature. (A114, numbering added).

Kant's argument here has four main premises **[1]-[4]** for the conclusion that the categorial realist principle ($\alpha \rightarrow R(\alpha)_{Und}$) cannot be rationally cognized (**[C]**). **[1]** asserts indirect categorial realism's core assumption that this principle is to be inferred from the conformity of all possible objects in nature to categorial laws ("one would have to borrow them from the objects of nature itself"). The

[207] To illustrate, consider the categorial law *every alteration in nature has a cause*. The consequences of the understanding's *a priori* cognition of the categorial law would include cognition of the conformity of every possible alteration in nature to the law (viz. they must each have a cause).

rest of the argument specifies why cognition of the conformity of all possible objects in nature to categorial laws is impossible.

To this end, **[2]** says that cognition of the conformity of all possible objects in nature to categorial laws would have to be drawn from *empirical* cognition ("this could happen only empirically"). Why? Although I must leave this question for discussion elsewhere, a tentative suggestion is that **[2]** stems from two background assumptions. First, insofar as the possibility of objects are not grounded in our very representation of them (à la categorial idealism), cognition of possible objects in nature ultimately must be traced back to cognition of actual objects in nature. Otherwise, our representations of possible objects risk spinning off into mere figments of the mind.[208] Second, cognition of actual objects in nature ultimately must be traced back to immediate (or non-rational) empirical cognitions (even if not every cognition of an actual object is itself an immediate cognition).[209] These two background assumptions would jointly entail **[2]**.

Since cognition of the conformity of all possible objects in nature to a categorial law would have to be drawn empirically (per **[2]**), this cognition would be impossible on the supposition that this cognition cannot in fact be drawn empirically. **[3]** asserts precisely this supposition ("from that [=empirical cognition] nothing but merely contingent unity could be drawn"). Why? Although I must likewise leave this question for discussion elsewhere, a tentative suggestion is that **[3]** stems from two further background assumptions. First, the salient sense of *possibility* here just amounts to conformity with categorial laws and other formal conditions of experience.[210] So construed, more objects may be possible than are actual. Second, cognition of the conformity of any merely possible objects to categorial laws cannot be drawn from empirical cognition of the conformity of actual

[208] Cf. A50-2/B74-6, A156/B195, and A239/B298. For more on this risk, see Chignell (2017).
[209] Cf. A20/B34, A50-2/B74-6, A92/B124-5, A128-9, and A231/B284.
[210] Cf. A93/B125-6, A110-1, A156-8/B195-7, and A218/B265. For further discussion of this sense of "formal" possibility, see Chignell (2014) and Stang (2016).

objects in nature to those laws. For instance, even though no phlogiston actually exists, phlogiston may still be possible (insofar as it is compatible with *every alteration in nature has a cause* and other categorial laws). Yet precisely because phlogiston does not actually exist, cognition of its conformity to categorial laws cannot be drawn from empirical cognition of the conformity of actual objects in nature to those laws (A290-1/B347). These two background assumptions would jointly entail **[3]**.

From the premises that **[2]** cognition of the conformity of all possible objects in nature to a categorial law would have to be drawn from empirical cognition and **[3]** cognition of this conformity in fact *cannot* be drawn from empirical cognition, it follows that cognition of this conformity is (in principle) impossible. This implication is articulated in **[4]**; what can be drawn from empirical cognition of objects "would fall far short of the necessary connection that one has in mind when one speaks of nature." And since cognition of all the possible consequences of the ground of the categorial realist principle (Γ) would require cognition of the conformity of all possible objects in nature to a categorial law (per the indirect path), **[4]** entails that cognition of Γ is impossible.

Yet per the assumption of indirect categorial realism in **[1]**, the categorial realist principle ($\alpha \rightarrow R(\alpha)_{Und}$) is to be rationally cognized from all the possible consequences of its ground (per $\Gamma \rightarrow^{-} [\alpha \rightarrow R(\alpha)_{Und}]$). So given that cognition of Γ is in fact impossible (per **[4]**), indirect categorial realism forecloses rational cognition of the categorial realist principle. But the possibility of the categorial realist explanation of the understanding's *a priori* cognition of categorial laws requires rational cognition of the categorial realist principle (as we saw in section III). Thus, precisely as Kant concludes in **[C]**, indirect categorial realism fails to offer a possible explanation of the understanding's *a priori* cognition of categorial laws.

Although this argument against indirect categorial realism is far from obvious or uncontroversial (as I have highlighted above), it hardly rests on some gross non-sequitur (as many of

Kant's critics have alleged). This reconstruction of the argument thereby makes good on our guiding thread: heeding Kant's account of explanation provides the key to understanding his inference to the only possible explanation.[211]

VI. Against Direct Categorial Realism

Like indirect categorial realism, direct categorial realism claims that the understanding's *a priori* representation of categorial laws is grounded in nature itself (per the categorial realist principle $\alpha \rightarrow R(\alpha)_{Und}$). Yet unlike the former, direct categorial realism attempts to infer this principle directly from its ground (α^*). Schematically:

Direct Categorial Realism

(i) $\alpha^* \rightarrow [\alpha \rightarrow R(\alpha)_{Und}]$

(ii) α^*

$\therefore \alpha \rightarrow R(\alpha)_{Und}$

To avoid conflating the principle's ground with the ground expressed in the principle itself (viz. α), I will call the former *the external ground*. Direct categorial realism is sometimes described as a neglected alternative, since Kant responded to it only after the initial publication of the first *Critique*.[212] Many have insisted that his belated response fails.[213] Yet by heeding Kant's conditions on explanation, I will argue, his purportedly "decisive" objection against direct categorial realism (presented at B167-8) becomes tractable.

On the direct categorial realist view,

[211] Inferences to the only possible explanation are often taken to be closely tied to transcendental arguments. For reasons of space, I will leave an explication of these connections for discussion elsewhere. But insofar as transcendental arguments are a kind of inference to the only possible explanation, what I have just detailed about the latter would *a fortiori* apply to the former.

[212] For historiographical background, see Allison (2015).

[213] Some—including Hogan (2009, 381) and Allison (2015, 430-2)—offer spirited and original defenses of Kant here. Their defenses hinge on certain claims about transcendental freedom and normativity, respectively. Not only are these claims themselves exegetically controversial, but they also seem detached from the Transcendental Deduction's objections against direct categorial realism discussed below (B166-8).

> the categories were neither self-thought a priori first principles of our cognition nor drawn from experience, but **[1]** were rather subjective predispositions for thinking, implanted in us along with our existence **[X]** by our author **[2]** in such a way their use would agree exactly with the laws of nature along which experience runs (a kind of preformation-system of pure reason) […] (B167, numbering added).[214]

The direct categorial realist's external ground plays two crucial roles. First, it brings about the understanding's *a priori* representations of categorial laws. These representations are accordingly "subjective predispositions for thinking, implanted in us along with our existence" (per **[1]**). Second, the external ground ensures that the understanding's *a priori* representations of categorial laws harmonize with how nature really is in itself. These representations accordingly veridically represent how nature is in itself; they "would agree exactly with the laws of nature along which experience runs" (per **[2]**). So by playing these two roles, the external ground would ensure not only that the understanding represents categorial laws *a priori*, but also that these representations veridically represent how nature is in itself—per the direct categorial realist principle ($\alpha^* \rightarrow [\alpha \rightarrow R(\alpha)_{Und}]$).

One issue concerns the external ground and our cognition of it. As **[X]** indicates, Kant typically construes the external ground as God ("our author"), who benevolently ensures that our *a priori* representations of categorial laws harmonize with how nature is in itself.[215] Kant casts doubt on the cognizability of the external ground. How can we rule out the possibility, for instance, that the understanding's *a priori* representations stem from a source intent on deception, *à la* Descartes' evil demon (AK 4:319n)?

In any case, Kant's purportedly "decisive" objection against direct categorial realism does not challenge cognition of the external ground. Even granting this cognition, he says,

> […] this would be decisive against the supposed middle way: that in such a case the categories would lack the necessity that is essential to their concept. For, e.g., the

[214] Cf. AK 4:318-9 and AK 4:476n.

[215] Kant finds inspiration for this theological version in Crusius (AK 4:320). For the textual basis for this view in Crusius, see *Entwurf* §322 and *Weg* §431-2. I briefly touch upon the Kant-Crusius dialectic in a later footnote. The external ground might also be construed in a non-theological way, e.g. as involving an evolutionary process that selects for the *a priori* representation of categorial laws due to their value in promoting survival.

> concept of cause, which asserts the necessity of a consequent under a presupposed condition, would be false if it rested only on a subjective necessity, arbitrarily implanted in us, of combining certain empirical representations according to such a rule of relation. (B167-8).[216]

Kant's objection rests on a key conditional: *even if* the categorial realist's external ground ensures that the understanding's *a priori* representation of categorial laws and its object (viz. the necessary connections in nature that are represented by these laws) stand in a necessary relation to each other, this representation would still not amount to a cognition.

But what, then, is Kant's rationale for this key conditional? It might seem rather questionable. Since the understanding's *a priori* representation of categorial laws *ex hypothesi* stands in a necessary relation to its object, the representation is veridical—it corresponds to how reality is in itself. So why wouldn't this representation amount to a cognition?[217]

I propose that Kant's rationale for this key conditional comes back to the two general constraints on cognition from section III. As we saw, for a representation to amount to a cognition, it is not enough for it to stand in a necessary relation to its object. Rather, this necessary relation can be grounded in only one of two ways: in the object itself (per the object-first scheme) or in the representation (per the representation-first scheme). With respect to the understanding's *a priori* cognition of categorial laws, the categorial realist adopts the object-first scheme ($\alpha \rightarrow R(\alpha)_{Und}$). So for the direct categorial realist to secure the understanding's *a priori* representation of categorial laws status as a cognition, her external ground (α^*) must do more than merely ensure that this representation and its object stand in a necessary relation to each other. It must also ensure that this necessary relation is grounded in the object itself. This idea is expressed in the direct categorial realist's core principle: $\alpha^* \rightarrow [\alpha \rightarrow R(\alpha)_{Und}]$ (where "→", again, stands for a connection of grounding).

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[216] Cf. AK 4:475-6n.
[217] Guyer (1987, 369) advances a version of this rejoinder to Kant.

But here is the rub: the direct categorial realist's external ground fails to ensure that this constraint is satisfied. Per direct categorial realism, grant both that (i) the external ground grounds the understanding's *a priori* representation of a categorial law ($\alpha^* \rightarrow R(\alpha)_{Und}$) and (ii) the external ground grounds the object of this representation ($\alpha^* \rightarrow \alpha$). From (i) and (ii), it simply does not follow that the resulting necessary relation between the understanding's *a priori* representation of a categorial law and its object is grounded in the latter. More formally: from $\alpha^* \rightarrow R(\alpha)_{Und}$ and $\alpha^* \rightarrow \alpha$, it simply does not follow that $\alpha \rightarrow R(\alpha)_{Und}$. Or less formally: although the external ground forges a necessary connection between the representation and its object, it does not forge the object into a ground of the representation. The result is that the direct categorial realist's external ground fails to ensure that the necessary relation between the understanding's *a priori* representation of a categorial law and its object is grounded in the object. This result means that the direct categorial realist fails to secure her own core principle ($\alpha^* \rightarrow [\alpha \rightarrow R(\alpha)_{Und}]$).

This result spells disaster for direct categorial realism. For given this result and given that the understanding's representation of a categorial law amounts to a cognition only if the necessary relation between a representation and its object is grounded in the latter (per the categorial realist's object-first scheme), the understanding's representation fails to amount to a cognition. Without this necessary relation being grounded in the object, this relation *ex hypothesi* remains only *subjectively* necessary. Precisely as Kant claims above and elsewhere:

> This remedy would be much worse than the evil it is supposed to cure, and, on the contrary, actually cannot help at all. For the *objective necessity* that characterizes the pure concepts of the understanding (and the principles of their application to appearances), in the concept of cause in connection with the effect, for example, is still not forthcoming. Rather, it all remains only *subjectively necessary*, but objectively merely contingent, placing together, precisely as Hume has it when he calls this mere illusion from custom. (AK 4:476n).

Since the datum that was to be explained (viz. the understanding's *a priori* cognition of categorial laws) is not even derivable from the direct categorial realism's external ground, direct categorial realism "would be much worse than the evil it is supposed to cure."

So as with his argument against indirect categorial realism, heeding Kant's underlying conditions on explanation (and on cognition) is the key to rendering his argument against direct categorial realism *tractable*—logically valid and not obviously unsound. Although these conditions are doubtlessly open to further scrutiny, the argument itself hardly rests on some gross non-sequitur—*pace* critics like Guyer (1987).[218]

The larger result is that Kant's conditions on explanation preclude both direct and indirect categorial realism from attaining rational cognition of the categorial realist principle ($\alpha \rightarrow R(\alpha)_{Und}$). Since Kant's account of explanation implies that rational cognition of this principle is required for categorial realism to explain the understanding's *a priori* cognition of categorial laws (as we saw in section III) and since such rational cognition could only be attained directly or indirectly (as we saw in section IV), this larger result indicts categorial realism itself. Categorial realism itself to explain the understanding's *a priori* cognition of categorial laws—per the antinomy premise (stated in section IV). The mutual destruction wrought upon categorial realism by the antinomy of rational cognition therefore still leaves us without an explanation of the understanding's *a priori* cognition of categorial laws. Reason's cry for explanation might therefore seem to go unanswered.

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[218] How might Crusius respond to Kant's argument against direct categorial realism? I surmise he would simply deny Kant's explanandum that the understanding has *a priori* cognition of categorial laws—and therefore is not properly considered a direct categorial realist at all (i.e. he is not in the business of explaining the understanding's *a priori* cognition of categorial laws). On Crusius' view, only *rational* cognition of categorial laws is possible. Insofar as "lower" non-rational cognitive faculties are innately disposed to represent certain necessary connections together, these faculties are *compelled* [*gezwungen*] to represent them together. This compulsion does not amount to cognition until we "become aware [*gewahr werden*] of a necessity" through rational inferences (*Weg* §185). As Crusius later clarifies: "yet insofar these representations have an existing object is first of all cognized through inferences with respect to the highest indicators of truth." (*Weg* §465). Crusius' denial of Kant's explanandum does not undermine the substance of Kant's argument (as I have reconstructed it), since his argument only purports to show that insofar as this explanandum holds, direct categorial realism fails to explain it. The real disagreement between Kant and Crusius, then, really comes down to the prior question of whether the understanding can cognize categorial laws *a priori*. That disagreement, while highly substantive, was bracketed in section II—it hinges on Kant's earlier arguments in the Transcendental Deduction.

VII. The Resolution: Categorial Idealism as the Only Possible Explanation

But all is not lost. For as we saw in section III, there is one other candidate explanation of the understanding's *a priori* cognition of categorial laws: categorial idealism. Instead of taking the understanding's *a priori* representation of a categorial law to conform to its object (per the object-first scheme), categorial idealism takes the possibility of objects in nature to conform to the understanding's *a priori* representation of the categorial law (per the representation-first scheme). That is, the understanding's *a priori* representation of a categorial law grounds the conformity of any possible objects in nature to the law (per $R(\alpha)_{Und} \rightarrow \alpha$). The understanding would thereby *prescribe* or *legislate* categorial laws to nature.[219]

In light of categorial realism's failure to provide a possible explanation of the understanding's *a priori* cognition of categorial laws, categorial idealism remains as the only possible explanation. That is, supposing that the understanding's *a priori* cognition of categorial laws must admit of some explanation (per categorial rationalism) and that categorial realism and categorial idealism are exhaustive candidate explanations of the understanding's *a priori* cognition of categorial laws (per the exhaustiveness premise from section III), one of these explanations must hold. Given this and given that categorial realism fails to offer a possible explanation of the understanding's *a priori* cognition of categorial laws (per the antinomy premise from section IV), it follows that the categorial idealist explanation must hold.

The same argument, more formally:

<u>Kant's inference to the only possible explanation</u>

[219] What about the ground of the understanding's *a priori* representation of categorial laws? On Kant's view, this ground lies in the very essence of the understanding. As he puts this claim, the understanding "brings them about, *a priori*, out of itself." (AK 8:221). Cf. A126-7, B131-7, and B163-7. This claim is closely tied to the synthetic unity of apperception (a bit more on this in the next footnote).

(1) Categorial rationalism: the understanding can have *a priori* cognition of categorial laws, which admits of an explanation.

(2) Exhaustiveness premise: if the understanding's *a priori* cognition of categorial laws admits of an explanation, either the categorial idealist explanation holds or the categorial realist explanation holds.

(3) Antinomy premise: no categorial realist explanation of the understanding's a priori cognition of categorial laws (direct or indirect) is possible.

(4) If the understanding's *a priori* cognition of categorial laws admits of an explanation, the categorial idealist explanation holds. **(from 2, 3)**

∴ The categorial idealist explanation holds. **(from 1, 4)**

Categorial idealism is therefore the cost that must be paid to satisfy reason's overarching demand for an explanation of the understanding's *a priori* cognition of categorial laws. Since these laws are ideal, they ground the very possibility of the objects represented through them (as we saw in section III). Given this and given that Kant had previously taken to establish these laws as laws of objects of possible experience (B161), these laws do not represent how these objects might be in themselves, but only how they are in possible experience. Precisely as Kant ends the A Deduction:

> Pure concepts of the understanding are therefore possible, indeed necessary a priori in relation to experience, only because our cognition has to do with nothing but appearances, whose possibility lies in ourselves, whose connection and unity (in the representation of an object) is encountered merely in us, and thus must precede all experience and first make it possible as far as its form is concerned. And from this ground, the only possible one among all, our deduction of the categories has been conducted. (A130).[220]

[220] Because this argument would entail that the categorial idealist explanation is actually true, it *a fortiori* entails its possibility. However, the argument does not directly prove the possibility of the categorial idealist explanation. A direct proof would have to derive the categorial idealist principle ($R(\alpha)_{Und} \rightarrow \alpha$) directly from its ground. I think Kant does attempt such a proof—in brief, he ties the ground of the categorial idealist principle to the transcendental unity of apperception that is essential to the understanding. But I shall leave this for discussion elsewhere. Cf. A111-3, A118-9, A126-7, B135-7, B143-7, B157-9, A145-6/B185, B278, A418/B446, AK 5:46-7, AK 5:186, AK 8:221, AK 18:182-3, AK 20:225, AK 20:241, and AK 28:266-9. For two important discussions, see Longuenesse (1998) and Schulting (2019).

So precisely as we set out to show, heeding Kant's account of explanation renders his inference to the only possible explanation tractable—logically valid and not obviously unsound.

VIII. Conclusion

Even if Kant's inference to the only possible explanation is tractable (as I have argued), its soundness remains an open question. Some may reject categorial rationalism, and thus reject the *explanandum* underlying the inference. Others may regard Kant's conditions on explanation that enable the inference as too stringent or lofty. I concede all of this. None of this takes away from the importance of showing that the inference is tractable. It helps vindicate the Copernican guiding thread of our investigation: explanation is not mere justification. To explain is not merely to justify *that* something is so, but to rationally cognize why it so—from its ground in accordance with principles. So construed, Kant's inference to the only possible explanation helps to realize a titular aim of the *Critique of Pure Reason*: "to institute a court of justice, by which reason may secure its rightful claims while dismissing all its groundless pretensions, and this not by mere decrees but according to its own eternal and unchangeable laws; and this court is none other than the critique of pure reason itself." (Axi-Axii). What's more, I framed Kant's project as an instance of the overarching nomological rationalist aspiration of explaining metaphysical laws *a priori*. Insofar as the aspiring nomological rationalist likewise accepts Kant's conditions on explanation, the metaphysical laws she lays claim to *a priori* just might also call out for an idealist explanation. I leave this enticing possibility for discussion elsewhere.

This brings us to our final question: can the resulting categorial idealist picture be stomached? Like other wildly counterintuitive claims in the history of philosophy (from Leibniz's monads to Lewis' plurality of worlds), categorial idealism might be met with blank stares. How can our minds literally make nature and its a *priori* laws possible? Scholars who reject attributing

categorial idealism to Kant often do so in the name of preserving common sense.[221] So might common sense provide a *reductio* against categorial idealism?

Although I cannot fully resolve this question here, our investigation brings it into sharper focus. Per our guiding thread, reason demands explanation in philosophy—not mere justification. On this basis, Kant denies that common sense carries any veto power over reason's demand:

> It is in fact a great gift from heaven to possess right (or, as it has recently been called, plain) common sense. But it must be proven through deeds, by the considered and reasonable things one thinks and says, and not by appealing to it as an oracle when one knows of nothing clever to advance in one's defense. To appeal to ordinary common sense when insight and science run short, and not before, is one of the subtle discoveries of recent times, whereby the dullest windbag can confidently take on the most profound thinker and hold his own with him. So long as a small residue of insight remains, however, one would do well to avoid resorting to this emergency help. […] when judgments are to be made in a universal mode, out of mere concepts, as in metaphysics, where what calls itself (but often *per antiphrasin*) sound common sense has no judgment whatsoever. (AK 4:259-60).

At the beginning of inquiry, common sense can spur "insight and science." But to deny the resulting insight and science based on common sense ("To appeal to ordinary common sense when insight and science run short") is to deny reason the very explanation at which the philosophical enterprise aims. Regardless of whether common sense carries justificatory weight, it holds no veto power over reason's demand for explanation ("in metaphysics […] sound common sense has no judgment whatsoever"). So if reason is left with a single possible explanation, that explanation—no matter how counterintuitive—must be granted.

Those who regard the counterintuitiveness of categorial idealism as a *reductio* against it seem to be advancing precisely the position that Kant finds wanting. If categorial idealism really offers the only possible explanation of the understanding's *a priori* cognition of categorial laws, the inkling that *nature cannot conform to our minds* should no more stand in the way of accepting categorial idealism than the inkling that *the sun rises in the east* should stand in the way of accepting a heliocentric theory.

[221] Cf. Ameriks (2017) and Massimi (2017).

Perhaps Kant is wrong about this. In any case, Kant is simply taking reason's demand for explanation here to its logical conclusion: "even though it sounds strange at first, it is nonetheless certain, if I say with respect to the universal laws of nature: *the understanding does not draw its* (a priori) *laws from nature, but prescribes them to it*." (AK 4:320).

Chapter 5

Rationalism Self-Restrained: Autonomy and the Bounds of Sense

> Mathematics gives us a splendid example of how far we can go with a priori cognition independently of experience. Now it is occupied, to be sure, with objects and cognitions only so far as these can be exhibited in intuition. This circumstance, however, is easily overlooked, since the intuition in question can itself be given a priori, and thus can hardly be distinguished from a mere pure concept. Encouraged by such a proof of the power of reason, the drive for expansion sees no bounds. The light dove, in free flight cutting through the air the resistance of which it feels, could get the idea that it could do even better in airless space. (A4-5/B8-9).

I. Introduction

Like the intrepid dove's reach for airless space, the traditional rationalist metaphysician's lofty aspirations to transcend the limits of possible experience is bound to come crashing down. It is impossible to achieve any theoretical cognition of objects beyond possible experience—or so Kant's thesis of noumenal ignorance ("epistemic humility") implies.[222] Yet his argument for noumenal ignorance is mired in endless interpretative controversy. Sometimes underappreciated is that the *Critique of Pure Reason* offers, well, a critique of pure reason: "a critique of the faculty of reason in general, in respect of all the cognitions after which reason might strive independently of all experience, and hence the decision about the possibility or impossibility of a metaphysics in general" (Axii). Its central target is not the mystic or prophet claiming immediate awareness of objects beyond possible experience, but the traditional rationalist who alleges that human reason is capable of inferring their existence. Its argument for noumenal ignorance is accordingly first and foremost an argument for (what I will call) *rational ignorance*, the claim that rational cognition [*Vernunfterkenntnis*] of objects beyond possible experience is impossible. As its opening lines announce: "Human reason has the peculiar fate in one species of its cognitions that it is burdened with questions which it cannot dismiss, since they are given to it as problems by the nature of reason

[222] Practical cognition of objects beyond possible experience fortunately faces a less sordid fate than theoretical cognition. For discussion, see Hogan (2009). Below, I am exclusively concerned with theoretical cognition.

itself, but which it also cannot answer, since they transcend every capacity of human reason." (Avii).[223]

It is therefore unfortunate that although Kant's conditions on immediate, experiential cognition have received extensive treatment, his conditions on rational cognition have received comparatively little.[224] Indeed, according to the prevailing approach (popularized by Strawson's *Bounds of Sense* in the anglophone tradition), reaching rational ignorance does not require special consideration of the conditions on rational cognition. Rather, the conditions on immediate, experiential cognition explain why rational cognition can extend no further than the bounds of sense. Yet we shall see that the prevailing approach surrenders reason to *heteronomy*, shackling it to external constraints that no self-respecting rationalist could accept. I shall argue that Kant instead offers an *autonomous* explanation of the bounds of rational cognition: the principles endorsed by reason itself explain why the bounds of rational cognition extend no further than the bounds of sense.[225]

Kant characterizes reason as the faculty of cognition from principles: "here we will distinguish reason from understanding by calling reason the faculty of principles. […] I would therefore call 'cognition from principles' that cognition in which I cognize the particular in the universal through concepts." (A299-300/B356-7). In overview, rational cognition of an existing object requires the following two material elements.[226] The first material element consists in the

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[223] This is not to deny that the *Critique*'s restrictions on cognition have ramifications for the supernatural encounters professed by the mystic or prophet. But his works on religion offer a more thorough treatment of these figures.
[224] The focus on Kant's account of immediate, experiential cognition (especially of perceptually occurrent objects) is characteristic of the classic and more recent secondary literature. Cf. Strawson (1966), Bennett (1974), Allison (2004), Allais (2015), Watkins and Willaschek (2017), Grüne (2017), and Chignell (2017). This line of Kant scholarship seems in the spirit of Vaihinger's (1922) proposed addendum to the *Critique*'s title: "The title '*Critique of Pure Reason*' is to be completed through the addition: '*Theory of Experience.*'" (8).
[225] The present investigation is framed in terms of rational ignorance of objects beyond possible experience. Framing it instead in terms of things in themselves would require elucidating Kant's distinction between things in themselves and appearances. Neutrality regarding this distinction is advantageous, given the wide range of interpretations on offer.
[226] Given that rational ignorance concerns rational cognition of the existence of objects beyond possible experience, the following two restrictions will be in place. First, we will only be concerned with the conditions on rational cognition that aims to infer the existence of objects and their properties (rather than merely their possibility). Second, we will restrict

principle itself, which expresses "the relation between a cognition and its condition." (A304/B361). Logically speaking, a principle expresses a law-like, necessary connection between the satisfaction of one concept (the "condition") and another concept (the "cognition"). For instance, the principle that *all alterations have a cause* would express the connection between the concepts <alteration> (the condition) and <having a cause> (the cognition).[227] The second material element consists in cognition of something that exists that satisfies the condition of the principle. This element is needed to establish the existential import of the principle, i.e. that there is a non-empty domain of objects to which the principle applies. With cognition of these two material elements in hand, reason's power to apply logical rules of inference enables it to inferentially cognize that something exists that satisfies the principle's consequent (A330/B387).

The same basic conception of rational cognition was endorsed by Kant's eighteenth-century German rationalist predecessors, most notably *Christian Wolff* (1679-1754) and *Christian Crusius* (1715-1775).[228] As traditional rationalists, they affirm the possibility of rationally cognizing the existence of objects beyond possible experience (e.g. of simple substances and God).[229] Yet Kant alleges to have proven just the opposite in the first major part of the *Critique*, the Transcendental Analytic: "we have already proved in the Transcendental Analytic […] that all the inferences that would carry us out beyond the field of possible experience are deceptive and groundless"

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our attention to causally efficacious objects, i.e. those that have causal powers. The paradigmatic objects of traditional metaphysics (simple substances, God, etc.) are of this sort.

[227] Cf. A300-2/B356-8, A330/B386-7, A713-4/B741-2, A836-7/B864-5, A840/B868, AK 9:64-65, AK 16:95, AK 18:417-8, AK 24:50, AK 24:539, and AK 24:730-1. Kant's logic distinguishes categorical, hypothetical, and disjunctive principles. "The relation between a cognition and its condition" is expressed by the connection between the subject and predicate in a categorical principle, between the antecedent and consequent in a hypothetical principle, and the two disjuncts of a disjunctive principle (A304/B361). Yet to avoid confusion with other kinds of conditions, I will describe the general logical structure of a principle here in terms of the antecedent-consequent relation.

[228] Cf. Wolff's *Psychologia Empirica* §483-96, *Theologia Naturalis* §286-9, and Crusius' *Weg* §109-11. For historical background, see Cassirer (1907), Heimsoeth (1926), Campo (1939), Tonelli (1959), Beck (1969), Watkins (2005), Hogan (2009), Dyck (2014), and Anderson (2015).

[229] Cf. Crusius' *Entwurf* §204-36 and Wolff's *Theologia Naturalis* §24-72.

(A642/B670). So, in broad outline, how does his master argument for rational ignorance go there? That is the central question of our investigation.

The two material elements of rational cognition give rise to two potential answers, which have not been adequately distinguished. The first approach would deny the possibility of cognition of any principle whose consequent affirms the existence or features of particular objects beyond possible experience. For instance, this approach might deny the possibility of cognizing the principle *all contingent beings have a necessary first cause*. Call this *the principle approach* to rational ignorance. By contrast, the second approach need not deny that such principles are true or even cognizable *per se*. Rather, it denies the possibility of cognizing objects that can satisfy such principles. To borrow (and interpret) Kant's phrase, such principles would then fail to yield cognition of "relation to an object, i.e., objective reality." (A109). Affirm the truth of any principle you please—about monads, God, whatever. The question remains: what ensures that any object can satisfy your principle, and thus that the domain of objects that can satisfy it is not empty? Without cognizing your principle's objective reality—i.e. cognizing that some object could satisfy your principle—your principle will fail to yield cognition of any existing objects. For instance, take the principle *all contingent beings have a necessary cause*. Without cognizing the existence (and *a fortiori* the possibility) of some contingent being, the existence of a necessary first cause cannot be rationally inferred via this principle. In brief, *the objective reality approach* (as I will call it) aspires to show that it is impossible to cognize objects beyond possible experience because it is impossible to cognize that an object could satisfy a principle whose consequent affirms the existence or features of objects beyond possible

experience.[230] On the reconstruction I will outline, the Transcendental Analytic's master argument for rational ignorance takes the objective reality approach.[231]

Readers of Kant have long been told that intuition and concepts furnish the basis for cognition of objective reality: "Intuition and concepts therefore constitute the elements of all our cognition […] Without sensibility no object would be given to us, and without understanding none would be thought. Thoughts without content are empty, intuitions without concepts are blind." (A51/B75). Much has been written about how intuition and concepts are needed for immediate, experiential cognition. That is great, but we should not compare cognition of apples to angels. How do intuition and concepts make it possible for *rational* cognitions to have objective reality? The first half of our investigation will reconstruct Kant's neglected answer to this question.

To answer this question, I will suggest that Kant endorses a well-foundedness constraint; to have objective reality, rational cognitions must ultimately be inferred from immediate (=non-rational) cognitions. That is, rational cognitions win their relation to existing objects by being well-founded in immediate cognitions. And far from being inexplicable constraints on rational cognition, sensible intuition and concepts are both needed for rational cognition to be well-founded. To wit, sensible intuition and concepts are needed to subsume immediate cognitions under the antecedent of a principle, from which rational cognitions can be inferred. Sensible intuition and concepts thereby make it possible for rational cognitions to have objective reality.

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[230] So as I shall understand it, a principle (concept, etc.) has *objective reality* only if it is possible for an object to satisfy it, i.e. only if the domain of objects that can satisfy the principle (concept, etc.) is not empty. Cognition of the objective reality of a principle (concept, etc.) would accordingly require cognition that it is possible for an object to satisfy it. This characterization of objective reality is a starting point of this investigation—I will not directly defend it here. Even if this characterization did not perfectly match Kant's usage of "objective reality," that would not damage my proposal that the notion of objective reality (so construed) underscores his argument for rational ignorance. The very fact that this characterization will generate a compelling reconstruction of Kant's argument for rational ignorance is itself motivation for adopting it. Nonetheless, many have recently advanced broadly similar conceptions of objective reality. Cf. Stang (2016), Grüne (2017), Chignell (2017), and Watkins and Willaschek (2017).

[231] The principle approach would presuppose the objective reality approach, assuming that cognition of a principle requires cognizing that at least one object can satisfy it. Since it is not obvious that Kant endorses this assumption, I remain non-committal here.

Since the immediate cognitions enabled by sensible intuition and concepts are cognitions of objects of possible experience, the objective reality of rational cognition of objects beyond possible experience hinges on preserving well-foundedness in ascending beyond possible experience. Specifically, we will see that preserving well-foundedness in the ascent beyond possible experience would require a kind of rational inference in which the non-sensible (or "pure") content of an experiential cognition is abstracted from its connection with sensible conditions. A *sensible abstraction principle* (as I will call it) isolates the non-sensible content of an experiential cognition from its connection to sensible conditions. But Kant claims that this preliminary inference goes disastrously wrong; the objective reality of sensible abstraction principles is uncognizable. That is, cognition that an object satisfies a pure concept in connection to its sensible conditions does not entail the possibility of cognizing that the object must (or even can) satisfy that pure concept in abstraction from those sensible conditions. Given this entailment, then insofar as a series of rational cognitions begins with immediate, experiential cognitions (as well-foundedness demands), it can extend no further than experience. Kant's master argument for rational ignorance therefore stands or falls with this entailment. Unfortunately, Kant's argument for this entailment is rather cryptic, leaving us with (what we might call) *the problem of rational abstraction*.

As I detail below, the prevailing approach alleges that cognition of the objective reality of sensible abstraction principles is impossible because at least one constraint on immediate, experiential cognition extends to all rational cognition. By imposing constraints on immediate, experiential cognition onto reason, the prevailing approach offers (what I call) a *heteronomous* approach to rational ignorance. However, I shall suggest that the prevailing approach thereby talks past his German rationalist predecessors (at best) or outright begs the question against them (at worst). Rather than imposing constraints on immediate, experiential cognition onto reason, Kant claims that reason's own principles explain why rational ignorance holds. A critique of pure reason

reaches its verdict about reason's boundaries "not by mere decrees but according to its [=reason's] own eternal and unchangeable laws." (Axi-Axii).[232] On this *autonomous approach*, rational ignorance is handed down by reason's own principles. Since any self-respecting rationalist follows the guide of reason, she would have to accept its verdict.

Outlining the autonomous approach to rational ignorance is the central goal of the second half of our investigation. In brief, I will argue that cognition of the objective reality of sensible abstraction principles is impossible because these principles do not have objective reality *tout court*. With help from Crusius, I will first clarify how *non-logically* necessary connections (expressed in *principles of synthesis*) would restrict the objective reality of abstraction principles in general. I will then show how, given this constraint, Kant's experiential principles of synthesis (purportedly proven in the first *Critique*) would preclude sensible abstraction principles from having objective reality. This makes good on the autonomous approach: the very principles proven by reason would explain why reason cannot ascend (via sensible abstraction principles) to cognitions beyond the bounds of sense.

In section II, I clarify Kant's well-foundedness constraint on rational cognition. In section III, I elucidate why sensible abstraction principles are needed to ascend to rational cognition beyond possible experience. In section IV, I argue that the prevailing heteronomous approach fails to adequately explain the impossibility of this ascent. In section V, I explain how principles of synthesis would constrain the objective reality of abstraction principles. In section VI, I argue that Kant's experiential principles of synthesis preclude sensible abstraction principles from preserving objective reality. In section VII, I formalize the resulting argument for rational ignorance. In section VIII, I conclude.[233]

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[232] Cf. A11/B24-5, A13/B27, A751/B779, A758/B786, A761/B789, A836-7/B864-5, and AK 5:167.

[233] Some contemporary metaphysicians likewise construe metaphysics as ascertaining metaphysical laws and principles. Cf. Kment (2014), Rosen (2017), and Schaffer (2017a). So the challenge of ascertaining their objective reality remains a live (if oft-neglected) issue.

II. Experience and the Well-Foundedness of Rational Cognition

Suppose you see a broken window. You rationally infer that the window's being broken had a cause (via Kant's principle that *every alteration in nature has a cause*). Beyond the truth of this principle, what ensures that the inferred cognition represents an existing cause, i.e. that there is some existing cause "out there" that indeed caused the window to break? And what ensures that when you infer again from this cause to a further cause (and to *its* cause, etc.), there really are causes "out there" corresponding to my inferences? For any rational cognition in this series to represent existing causes (and thus for it to have objective reality), Kant holds, it would have to be traced back to some cognition that is not itself a rational cognition. That is, the source of its objective reality must ultimately lie in some *immediate* (and thus non-rational) cognition(s) of existing objects. Being inferred from immediate cognitions keeps rational cognitions tethered to existing objects. Without a foundation in immediate cognitions, we risk erecting a system of rational inferences with no relationship to existing objects at all—mere figments of the mind [*Hirngespinste*] (A50-2/B74-6).

In short, for a rational cognition α to be a cognition of an existing object, there must be a *well-founded* inferential path to α, i.e. a path to α from some immediate cognition(s). We shall revisit the need for well-foundedness *writ large* after briefly sketching how Kant develops this idea. Specifically, he claims that immediate cognitions of existing objects must be wrought through *experience*:

> If a cognition is to have objective reality, i.e., to be related to an object, and is to have significance and sense in that object, the object must be able to be given in some way. To give an object, if this is not again meant only mediately, but it is rather to be exhibited immediately in intuition, is nothing other than to relate its representation to experience (whether this be actual or still possible). (A156/B195).

To borrow the above example, your immediate, experiential cognition of the broken window helps explain why your inference yields a rational cognition of an existing cause. This well-foundedness constraint on rational cognition can be put as follows:

(1) Well-Foundedness Constraint: for any rational cognition α in a series of rational cognitions $\alpha_1, \alpha_2 \ldots \alpha_n$, α's objective reality is cognizable **only if** $\alpha_1, \alpha_2 \ldots \alpha_n$ terminates in an immediate, experiential cognition α_x (where x=a sensible object).[234]

But why exactly is *experience* needed for rational cognition to be well-founded on immediate cognitions? In this section, I will answer this neglected question by arguing that Kant's two central constraints on experiential cognition—intuition and concepts—are needed to subsume an immediately cognized object under the antecedent of a principle. These two constraints are *ipso facto* requirements on securing the well-foundedness of a rational cognition, and thus on securing its objective reality.

First up is *intuition*. Intuition is defined as ensuring a cognition's immediate relation to an object: "In whatever way and through whatever means a cognition may relate to objects, that through which it relates immediately to them […] is called intuition" (A19/B33). Intuition is therefore (by definition) required for a cognition to be *immediate*. That is, for a cognition to be immediate, it must (by definition) be related to its object via intuition.[235] This implies that a series of rational cognitions is well-founded on immediate cognition *only if* the immediate cognition in question is related to an object via intuition. As Kant puts it: "all principles, however a priori they may be, are nevertheless related to empirical intuitions, i.e., to data for possible experience. Without this they have no objective validity at all, but are rather a mere play […]" (A239/B298). Now Kant famously takes human beings to possess only *sensible* forms of intuition, viz. space and time. So in order for an immediate cognition to be related to an object via intuition, the intuition must be *sensible*.[236]

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[234] The numbered bolded claims will be premises of the reconstruction of Kant's master argument presented in section VII.

[235] We need not settle here how exactly intuition relates immediate cognitions to objects. Though for more recent discussion, see Tolley (2013), Allais (2015), Watkins and Willaschek (2017), Grüne (2017), and Chignell (2017).

[236] Perhaps aliens with non-sensible intuitions could satisfy the well-foundedness constraint without sensible intuitions (B72). In any case, *cognition* will be understood in this investigation as cognition *given our (sensible) forms of intuition*.

This idea can be expressed as follows:

Intuition Constraint: a series of rational cognitions $\alpha_1, \alpha_2 \ldots \alpha_n$ terminates in an immediate cognition α_x *only if* α_x's object (=*x*) is immediately given via sensible intuition.

Nonetheless, a mere intuition of an object is not directly subsumable under the antecedent of a principle, and thus alone cannot provide the basis for a well-founded series of rational cognitions. For the antecedent (or condition) of a principle expresses a *concept*.[237] For instance, if object *a* is to be subsumed under the antecedent of the principle $\Box\forall x(Fx \rightarrow Gx)$, *a* must first be subsumed under concept *F*. For precisely this reason, Kant's second central constraint on experiential cognition—the application of concepts—is also essential for securing the well-foundedness of a rational cognition. In other words, since immediate cognition involves intuition and subsuming a cognition under the antecedent of a principle requires the cognition to have conceptual content, securing the well-foundedness of rational cognition requires the application of concepts to intuitions.

But, how, then, is the application of concepts to intuitions possible? In brief, Kant famously argues in the Schematism chapter that in order to be applied to (sensible) intuitions, concepts must be furnished with *sensible conditions* (A137-40/B176-79). These conditions infuse sensible (spatial or temporal) content into a concept. In effect, intuitions are directly subsumable only under (what I will call) *sensible concepts*, i.e. concepts that have at least some sensible (spatial or temporal) content. For instance, the concept <house> is applicable to intuitions only if this concept involves sensible permanence.

The need for sensible conditions, Kant argues, extends to pure *a priori* concepts, viz. the categories (<unity>, <substance>, <cause>, <necessity>, etc.).[238] As pure *a priori* concepts, the categories do not contain any sensible content in themselves. For instance, the concept <substance>

[237] Cf. A300-2/B357-9, A306-7/B363, and A330/B386-7.
[238] Cf. A137-40/B176-9 and A146-7/B186.

has no sensible content in itself; it simply expresses "something that can occur solely as subject (without being a predication of anything)" (A242-3/B300). Without sensible content, however, the categories cannot be applied to sensible intuitions of objects. The categories must therefore be supplied with sensible conditions if they are to be applied to such intuitions. Kant calls these conditions *schemata*; they "contain the general condition under which alone the category can be applied to any object." (A140/B179). For instance, the schema of substance introduces the condition of sensible permanence; something that satisfies this schema "endures while everything else changes." (A144/B183). Only by satisfying this sensible condition could sensible intuitions be subsumed under the concept <substance>.

How exactly the schemata work is contentious.[239] The key point here is simply that a rational cognition cannot be well-founded in immediate cognition unless it is ultimately inferred from a cognition of an object that is attributed a sensible ("schematized") concept. Stated more formally:

> **Concept Constraint:** a series of rational cognitions $\alpha_1, \alpha_2 \ldots \alpha_n$ terminates in an immediate cognition α_x *only if* a sensible concept *F* is applied to α_x's object (=*x*).

Thus, far from inexplicable constraints on rational cognition, (sensible) intuition and concepts—Kant's two central constraints on immediate, experiential cognition—are required to subsume immediate cognitions under the antecedent of a principle, and thus required to secure the well-foundedness of rational cognition. So insofar as rational cognition must be well-founded in immediate cognitions, rational cognition must be well-founded in immediate, *experiential* cognitions—per the well-foundedness constraint. The key question for the rest of Kant's argument for rational ignorance becomes how far rational cognitions can ascend from immediate, experiential cognitions.

[239] For one recent detailed discussion and plentiful citations to much of the secondary literature, see Stang (2022).

Yet one might worry that a traditional rationalist could already get off board by denying the well-foundedness constraint.[240] Although this issue deserves further attention, I will not pursue it here. In any case, Kant is not stacking the cards against his German rationalist predecessors by presupposing the well-foundedness constraint. They also accepted this constraint. As Wolff suggests:

> Rational cognition of what is or occurs is called *philosophical*. (*Disc. Praelim.* §6); historical cognition should precede philosophical cognition and be constantly conjoined with it so that it does not lack a firm foundation (*Disc. Praelim.* §11).
> [N]o string of reasoning is permitted to generate anything except other propositions in our cognition that go back to perception. (*Logica* §738).[241]

Or as Crusius suggests:

> All existing entities [*Existenzen*] must in the end be proven from experiences [*aus Erfahrungen*] […] However it does not follow from this that all existing entities must be immediately cognized from experience, which would be absurd. One can cognize from a few principles [*Sätzen*] that concern existing entities the existence of many other objects by means of correct inferences. (*Weg* §535).[242]

Indeed, given that intuition and concepts are derivable as conditions on the well-foundedness of rational cognition (as I have just argued), it should be unsurprising to hear that these rationalists likewise accept these conditions.[243]

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[240] See Beiser (2002) and Franks (2005) for discussion of post-Kantians challenges to this constraint.

[241] Cf. *Logica* §769, *Ontologia* §4, *Psychologia Empirica* §315-6, *Psychologia Empirica* §391-5, and *Theologia Naturalis* §1095-9. Fortunately, the traditional Anglophone view of Wolff as a rigid rationalist has largely met its demise. Among others, see Campo (1939), Tonelli (1959, 131), École (1979), Cataldi (2001), Kreimendahl (2007), Dyck (2014), Vanzo (2015), and Dunlop (2019).

[242] Cf. *Weg* §259-62, §433-4, and §519.

[243] As Crusius puts it, "Intuitive cognition is therefore that in which one represents a thing through that which it is in itself. Symbolic cognition, however, is that in which one represents a thing not through that which it is in itself, but rather through other concepts, which are capable of providing symbols for it, e.g. when one represents the causes and their constitution through their effects […] We would also not be able to think of things at all, if we did not have an intuitive cognition of some circumstances." (*Weg* §184, §186). For parallel discussion in Wolff, see *Psychologia Empirica* §325-392 and *Theologia Naturalis* §1095. And like Kant, Wolff and Crusius explicitly restrict intuition to the senses. As Wolff puts it, "our intuitive cognition of different things is restrained by the senses" (*Theologia Naturalis* §1095). Cf. Wolff *Logica* §30-33, §51-33, and *Psychologia Empirica* §315-30. See also Crusius' *Weg* §185-6 and §465. Granted, some latter-day Leibnizians (such as Carl Eberhard) and neo-Platonists (such as Johann Georg Schlosser) *did* posit non-sensible forms of intuition. Kant's essays *On a Discovery* (1790) and *On a Recently Prominent Tone of Superiority in Philosophy* (1796) contain his response to these factions, respectively.

Thus, if Kant can preclude inferences from experiential cognitions to cognitions beyond possible experience, his argument for rational ignorance would have real force against his German rationalist predecessors. And it certainly seems that the first *Critique*'s argument for rational ignorance is directed against Wolff and other German rationalists who share the same basic conception of rational cognition. At the outset, Wolff is deemed "the greatest among all dogmatic philosophers," one who had "the skills" to transform metaphysics into a legitimate science "if only it had occurred to him to prepare the field for it by a critique of the organ, namely pure reason itself." (Bxxxvi).

III. The Problem of Sensible Abstraction

To infer the existence of objects beyond possible experience, reason requires principles expressing concepts that are satisfiable by such objects.[244] Here are a few examples of such principles: *all contingent beings have a necessarily existing cause*, *everything has a sufficient ground*, and *all composite objects have simple parts.* As these examples indicate, the consequents of the requisite principles must lack any sensible content. For if the consequents had sensible content, they could not be satisfied by objects beyond possible experience. For instance, the concept <cause> in the principle *all contingent beings have a necessary first cause* would have to express the *non-sensible* ("unschematized" or "pure") concept of a cause. This concept would therefore not include the sensible content of sensible succession tied to its schematization. Rather, it would merely express "something that allows an inference to the existence of something else" (A243/B301).[245]

[244] A small terminological note: the satisfiability of a concept and possibility run together. To say that a concept is satisfiable is to say that it is possible for some object to satisfy that concept.
[245] See A242-4/B300-2 for glosses on other "unschematized" concepts. Some find the very distinction between schematized and unschematized concepts problematic. See, for instance, Buroker (2006) and De Boer (2016). Though as Stang (2022) notes, part of this dispute might be merely terminological. In any case, to avoid taking us far afield, I will simply have to bracket this dispute here.

Now a principle would be *absolutely pure* if both its antecedent *and* consequent concepts are pure, and thus lack any sensible content whatsoever. Kant maintains that only absolutely pure principles lie within the sphere of pure reason:

> Every cognition is called pure, however, that is not mixed with anything foreign to it. But a cognition is called absolutely pure, in particular, in which no experience or sensation at all is mixed in, and that is thus fully a priori. Now reason is the faculty that provides the principles of cognition *a priori*. Hence pure reason is that which contains the principles for cognizing something absolutely *a priori*. (A10-1/B24).[246]

So to achieve cognition beyond possible experience, pure reason would have to employ absolutely pure principles.[247] One might ask: why can't reason freely use *non-absolutely* pure principles, i.e. principles connecting non-pure concepts to pure ones (e.g. where *F* in the principle $\Box\forall x(Fx \rightarrow Gx)$ has sensible content and *G* does not)? The short answer is that without rigorously specifying non-absolutely pure principles, applying those principles is liable to produce fallacious inferences that equivocate between non-sensibly representable properties and sensibly representable ones (more on this below).[248]

Insofar as the fate of rational cognition of objects beyond possible experience stands or falls with the fate of absolutely pure principles, one salient question is whether such principles are true. Yet even if they could be shown to be true, it would not yet follow that objects beyond possible experience could be rationally cognized through them. This would require cognizing the *objective reality* of these principles. Cognition of their objective reality, in turn, must be traced back to immediate, experiential cognitions (per the well-foundedness constraint).

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[246] Cf. A306-7/B363 and A841/B869.

[247] This characterization of pure reason is also found among Kant's German rationalist predecessors. Cf. Wolff's *Psychologia Empirica* §495-6, *Theologia Naturalis* §286-9, and Crusius' *Weg* §109-11.

[248] For Wolff on this risk, see *Logica* §191, §312, §629, §636, §643, and §717; *Ontologia* §110-11, §581-2, §599-601, §611, §623-6, §686, and §805. For Crusius, see *Entwurf* §8 and *Weg* §461-69. For Kant, see A155/B194, A258-9/B314-5, A458-60/B486-8, A497-501/B525-9, and A635-7/B663-5.

Now here is the rub: experiential cognitions cannot satisfy the antecedents of absolutely pure principles. For as we saw above, experiential cognitions only attribute sensible concepts to objects. Yet the concepts constitutive of an absolutely pure principle cannot have any sensible content. For instance, if $\Box\forall x(Fx \rightarrow Gx)$ is such a principle, the cognition of a sensible object *a*'s satisfying <F+S> (where S is some sensible content) simply cannot satisfy the antecedent of this principle. Since the sensible contents of experiential cognitions preclude those cognitions from satisfying the antecedents of absolutely pure principles, a well-founded chain of rational cognitions cannot be extended beyond possible experience without first liberating pure concepts from their connection to sensible contents.

For Kant and his German rationalist predecessors, the liberation of pure concepts would have to occur through a preliminary rational inference that involves abstraction. An *abstraction inference* (as I will call it) extracts or isolates out a concept from its connection with some other concept(s). It involves an *abstraction principle*, which relates a concept (expressed in its antecedent) to a proper part of that concept (expressed in its consequent). This view of abstraction is explicitly adopted by Kant's German rationalist predecessors.[249] Accordingly, a *sensible abstraction inference* (as I will call it) extracts a pure concept from its connection with sensible content. It involves a *sensible abstraction principle*, which relates a sensible concept (expressed in its antecedent) to a pure proper part of that concept (expressed in its consequent). A sensible abstraction inference would therefore provide the kind of abstraction inference that liberates pure concepts from their connection to

[249] As Crusius puts it, "By means of this decomposition, one considers the one part or circumstance of an idea for itself in particular in isolation [*Absonderung*] and according to its difference from the rest. One calls this action *abstraction*. For *abstraction* means nothing other than to isolate in thought a concept from another concept in which it is contained (or to which it is connected), and to consider it for itself." (*Weg* §93). Crusius calls this *the path of abstraction* [*Abstractionsweges*] (*Entwurf* §8). Cf. Wolff's *Logica* §122, *Ontologia* §111, *Psychologia Empirica* §314, §326-30, and §348. For Kant, see AK 9:94-5, AK 24:239, 24:252-6, AK 24:261-2, AK 24:907-10, and AK 24:753-4. One might allege that Kant fundamentally disagrees with his predecessors about what abstraction amounts to. Yet as I see it, the idea that Kant presupposes the same basic notion of abstraction would help explain why his master argument for rational ignorance does not beg the question against them.

sensible contents. For instance, take the pure concept <substance>. The corresponding sensible concept adjoins sensible conditions onto this pure concept, i.e. <substance+sensible permanence +…>. The corresponding sensible abstraction principle would extract out the pure concept: $<\text{substance+sensible permanence}>_x \rightarrow <\text{substance}>_x$.[250]

Schematically, a sensible abstraction inference can be expressed as follows. Let <F> be a pure concept and let S be its corresponding sensible condition. Then:

Sensible Abstraction Inference Scheme

(i) $<F+S>_x \rightarrow <F>_x$

(ii) $<F+S>_x$

$\therefore <F>_x$

The sensible abstraction principle $<F+S>_x \rightarrow <F>_x$ in (i) says that given *x*'s satisfaction of <F+S>, *x* satisfies <F> by itself. Note that the sensible abstraction principle in (i) does not negate sensible content of object *x* (i.e. by ascribing ~S to *x*). Rather, it simply isolates a pure concept from its connection with sensible content.[251]

Sensible abstraction principles would putatively enable the extension of rational cognition beyond possible experience while preserving well-foundedness. For once a pure concept is abstracted out of an experiential cognition via a sensible abstraction principle, the resulting abstracted cognition would then be subsumable under an absolutely pure principle. To illustrate, the immediate, experiential cognition of object *a*'s satisfying <F+S> cannot be subsumed under the absolutely pure principle $\Box\forall x(Fx \rightarrow Gx)$. Yet applying a sensible abstraction principle—$<F+S>_x \rightarrow <F>_x$—to this cognition would, if successful, yield a well-founded cognition of *a*'s satisfying <F>.

[250] The appended variable *x* makes explicit that the same object *x* is the object of predication in both the antecedent and consequent.

[251] This tracks Kant's distinction between abstraction and separation: "Through abstraction [*Absonderung*] I think of a part of the concept, but by means of separation [*Trennung*] I negate something from my concept." (AK 24:262). Cf. AK 16:570, AK 24:753-4, and AK 24:907-8.

This well-founded cognition could then be subsumed under the absolutely pure principle $\Box\forall x(Fx \rightarrow Gx)$. This would, in turn, yield rational cognition of *a*'s satisfying <G>. The well-founded series of rational cognition could then be further extended via other absolutely pure principles—to cognitions of not only non-sensible features of the object in question, but also objects that exist beyond possible experience altogether.

Thus, the possibility of extending well-founded rational cognitions beyond possible experience stands or falls with cognizing the objective reality of sensible abstraction principles, i.e. with cognizing that an existing object can satisfy a pure concept in abstraction from sensible conditions. Without such cognition, the inferred pure cognition ($<F>_x$) will fail to express a cognition of an existing object. Any subsequent rational inferences from it will likewise fail to do so. To express this constraint more formally:

(2) Sensible Abstraction Constraint: the objective reality of a rational cognition of an object beyond possible experience from α_x (where α_x=an experiential cognition of sensible object *x*) is cognizable **only if** it is possible to cognize the objective reality of sensible abstraction principles (of the form $<F+S>_x \rightarrow <F>_x$).

So the fate of well-founded rational cognition beyond possible experience comes down to this: can we cognize the objective reality of sensible abstraction principles?

Such cognition might seem utterly unproblematic. For Kant is emphatic that pure concepts (including the categories) are logically distinct from any sensible conditions; pure concepts do not contain any sensible content in themselves. A pure concept would no longer be pure if it did. Because they are logically distinct, the connection between a pure concept and its sensible condition is not logically necessary; the absence of their connection would entail no contradiction. And it might seem that if the constituents of an abstraction principle are logically distinct, cognition of its objective reality is unproblematic. For instance, <bachelor> and <under two meters tall> are

logically distinct concepts; their connection is not logically necessary. Because of this, the corresponding abstraction principle <bachelor+under two meters tall>$_x$ → <under two meters tall>$_x$ seems utterly unproblematic. That is, given the cognitions that (i) x is a bachelor and (ii) x is under two meters tall, it is rationally cognizable that x is under two meters tall. So given that pure concepts and their sensible conditions are logically distinct and given that cognition of the objective reality of abstraction principles involving logically distinct concepts is unproblematic, the same would *a fortiori* go for sensible abstraction principles (e.g. <substance+temporal permanence>$_x$ → <substance>$_x$).

Nonetheless, Kant flatly denies that cognition of the objective reality of sensible abstraction principles is possible:

> Now if we leave aside a restricting condition, it may seem as if we amplify the previously limited concept; thus the categories in their pure significance, without any conditions of sensibility, should hold for things in general, as they are, instead of their schemata merely representing them how they appear […] In fact, even after abstraction from all sensible condition, significance, but only a logical significance of the mere unity of representations, is left to the pure concepts of the understanding, but no object and thus no significance is given to them that could yield a concept of the object. (A146-7/B186).[252]

By abstracting from all sensible conditions, Kant claims, "no significance is given to them [the categories] that could yield a concept of an object." Somehow, our cognitive purchase on existing objects vanishes when they are put through sensible abstraction principles! If this key claim is correct, the sensible abstraction constraint cannot be met. Kant could indeed then conclude that well-founded rational cognition of objects beyond possible experience is impossible. Given this and the well-foundedness constraint, rational ignorance would be vindicated.

Yet this key claim needs defending. Why is it impossible to cognize the objective reality of sensible abstraction principles? Since abstracting a pure concept from its sensible conditions does

[252] Cf. A155-6/B194-5, A240-2/B299-301, A247-8/B304-5, and B308.

not entail a contradiction (as we just saw), what else could undermine the legitimacy of these principles? Unfortunately, Kant's answer is *prima facie* unclear, and has given rise to competing interpretations. We might call this *the problem of rational abstraction*. Before it can pose a philosophical problem to the traditional rationalist, it poses an exegetical problem to Kant's would-be defenders.

IV. Heteronomous and Autonomous Approaches to Rational Ignorance

To explain why cognition of the objective reality of sensible abstraction principles is impossible, the prevailing approach strengthens Kant's constraints on immediate, experiential cognition (viz. intuition and concepts). Some proponents of the prevailing approach strengthen the intuition constraint. On their view, rational cognition extends to only *intuitable* objects and features, i.e. objects and features that could be given to us via intuition. Combined with the fact that our forms of intuition are sensible, this view implies that any rationally cognizable objects and features must be sensibly intuitable. We might call this *the strong intuition constraint*.[253] Other proponents of the prevailing approach instead strengthen the concept constraint. On their view, rational cognition extends to only *sensibly thinkable* objects and features, i.e. objects and features insofar as they are thought using sensible concepts. We might call this *the strong concept constraint*. For instance, Strawson (1966) famously advances a verificationist version of the strong concept constraint. On his view, pure concepts independently of any sensible content are meaningless: "there can be no legitimate, *or even meaningful*, employment of ideas or concepts which do not relate them to empirical or experiential conditions of their application." (16).[254]

The strong intuition constraint and the strong concept constraint would each suffice to preclude cognition of the objective reality of sensible abstraction principles. For the non-sensible

[253] This constraint is advanced by (among others) Langton (1998), Allais (2015), and Watkins and Willaschek (2017).
[254] Cf. Bennett (1974) and Willaschek (2018, 254-63). In principle, the strong intuition constraint and the strong concept constraint are compatible with each other. In practice, some proponents of the former constraint reject the latter. Cf. Watkins (2002) and Allais (2015).

("pure") concepts attributed to objects through these principles cannot be sensibly given or sensibly thought (by definition). These concepts therefore could not satisfy either of these constraints. Now to evaluate the adequacy of the prevailing approach, the key question is not whether Kant endorses these strong constraints. Rather, the key question is whether either of these strong constraints explains why it is impossible to rationally cognize any existing objects through abstraction inferences. That is, could either of these constraints be premises of his argument for rational ignorance (rather than consequences of it)?

The first thing to note is that by extending constraints on immediate, experiential cognition to explain rational ignorance, the prevailing approach (in either of the above two forms) offers a *heteronomous* approach to rational ignorance. For unlike the intuition and concept constraints, the strong intuition and concept constraints are not derivable from the nature of rational cognition as such. Specifically, whereas the intuition and concept constraints are derivable as constraints on the well-foundedness of rational cognitions (as we saw in section II), the strong intuition and strong concept constraints are not. Yet for this very reason, I will now argue that the prevailing heteronomous approach faces two trenchant problems. It not only (i) risks begging the question against Kant's German rationalist predecessors, but also (ii) violates the autonomy of reason that lies at the heart of a critique of pure reason. A couple recent defenses of the heteronomous approach highlight the first problem.[255]

Allais (2015) seeks to justify the strong intuition constraint by construing this constraint as a requirement needed for thought to refer to an object. On her view, when I cognize an object and its

[255] Insofar as non-heteronomous approaches to rational ignorance have been developed before, they typically rest on some comprehensive (and controversial) interpretation of Kant's distinction between things in themselves and appearances. Allison's (2004) approach is a prime example; it rests on his methodological interpretation of this distinction. Whatever their virtues may be, I will bracket such approaches here. I will ultimately develop a (non-heteronomous) argument for rational ignorance that does not presuppose a comprehensive interpretation of this distinction. As far as I can tell, the classic German interpretations of Kant (Heimsoeth, Henrich, Adickes, Vaihinger, Prauss, etc.) do not develop this argument—or evidently not clearly or convincingly enough for anglophone proponents of the heteronomous approach.

features, my thought refers to them only insofar as they are immediately givable—and thus givable in intuition. For instance, I succeed in referring to the bottle in front of me (in part) because it is immediately givable to me. Accordingly, objects beyond possible experience would likewise have to be immediately givable in order for my thoughts to refer them, and thus for them to be cognizable. But objects beyond possible experience are not immediately givable through our (spatio-temporal) intuition, and thus are not rationally cognizable by us. As she explains: "On this view, if there are in fact things which fall under the concept of a Leibnizian monad but we have no way of being acquainted with them, we are not in a position to use the concept of a monad in successful referential thoughts—in thoughts that succeed in having relation to these things." (270).

Let's concede that cognition requires reference and that *one* way of establishing reference involves the object or feature in question being immediately givable to us. Still, why should it be conceded that reference is *only* possible in this way? Without answering this question, Allais' justification for the strong intuition constraint will be question-begging. For Kant's German rationalist predecessors freely concede that certain objects and features cannot be intuited. *But so what*, they say. Provided that our rational cognitions are traced back to objects that are immediately given in intuition, reference to non-immediately givable objects and features is still possible via rational inference. For instance, reason can refer to a necessary first cause by inferring its existence via the principle that *all contingent beings have a necessary first cause*. Now perhaps this particular principle is not true or cognizable—fine. But what is the problem with the claim that *if* this principle is cognized (along with cognition of some existing contingent being), reference to a necessary first cause is achievable via inference? *So what* if the necessary first cause cannot be immediately given to us. As Wolff says of God, "We do not cognize God intuitively [*intuitive*], because our intuitive cognition of different things is restrained by the senses […] He must therefore be cognized from creatures, insofar as we infer from what is found in them to what must be found in God." (*Theologia*

Naturalis §1095). Unfortunately, Allais does not address how the strong intuition constraint would avoid begging the question here against Kant's German rationalist predecessors.

Chignell (2017) instead suggests that the strong intuition constraint stems from a more fundamental constraint on cognition: *the real possibility constraint*. Roughly, this constraint says that in order for an object to be cognized, its real possibility must be proven (Bxxvi). Chignell construes *real possibility* quite broadly as metaphysical possibility. So the real possibility constraint does not build in an intuitability requirement on his view. Nonetheless, Chignell insists that intuitability is typically required to prove an object's real possibility: "showing that an object can be intuited (or connecting it in some salient way to actual intuition) is typically the only way we have of proving its real possibility." (141).

Yet the first *Critique*'s introduction of the real possibility constraint explicitly allows that reason can prove an object's real possibility: "To cognize an object, it is required that I be able to prove its possibility (whether by the testimony of experience from its actuality or a priori through reason)." (Bxxvin). One way of proving an object's real possibility through reason—ostensibly without requiring the object's intuitability—would be to prove the object's existence through reason. For instance, if the cosmological argument succeeded "then we have no necessity of explaining the possibility of this condition [=God— JS]. For, if it has been proved that it exists, then the question of its possibility is quite unnecessary." (A610-1/B638-9). Chignell might claim that intuitability is also required to rationally cognize the existence of an object. But then we are right back to needing a justification for the strong intuition constraint; no progress has been made by appealing to the real possibility constraint. And, again, what is the argument for this claim? Unfortunately, Chignell does not provide one. Yet without one, Kant will beg the relevant question against his German rationalist predecessors.

Thus, by extending the constraints on immediate, experiential cognition to explain the bounds of rational cognition, the prevailing heteronomous approach leaves Kant's argument for rational ignorance susceptible to begging the question against his German rationalist predecessors. Although this problem does not foreclose the possibility of a non-question-begging heteronomous argument, it does cast serious doubt on its viability (pending some further story).

Yet the second problem facing the heteronomous approach strikes at its core. *Pace* this approach, Kant does not claim that extending the constraints on immediate, experiential cognition explains the bounds of rational cognition. Rather, he claims that reason's own principles ground the bounds of rational cognition:

> reason should take on anew the most difficult of all its tasks, namely, that of self-cognition, and to institute a court of justice, by which reason may secure its rightful claims while dismissing all its groundless pretensions, and this not by mere decrees but according to its own eternal and unchangeable laws; and this court is none other than the critique of pure reason itself. (Axi-Axii).
> the critique of pure reason […] is rather set the task of determining and judging what is lawful in reason in general in accordance with the principles of its primary institution. (A751/B779).

Insofar as reason's own principles explain why the bounds of rational cognition extend no further than the bounds of sense, this would amount to an *autonomous* approach to rational ignorance.

Since the verdict of rational ignorance *ex hypothesi* would be reached through reason's own principles, any self-respecting rationalist would have to accept it. So by taking the autonomous approach, Kant would skirt the risk of begging the question that plagues the heteronomous approach. This brings us to the central task of the second half of our investigation: developing the autonomous approach. Specifically, we have already seen that extending a series of well-founded rational cognitions to objects beyond possible experience would require cognition of the objective reality of sensible abstraction principles. So how can the autonomous approach preclude cognition of the objective reality of sensible abstraction principles, and thus restrict rational cognition to the bounds of sense?

V. Help from Strange Places: Crusius and the Synthetic Constraint on Abstraction

To develop the autonomous approach, we must distinguish two requirements on a principle's having objective reality. First, a principle has objective reality only if it has *antecedent* objective reality, i.e. only if it is possible for an object to satisfy its antecedent. Sensible abstraction principles clearly have antecedent objective reality. After all, if Kant's account of experiential cognition is correct, we have experiential cognitions that satisfy the antecedents of these principles. Second, a principle has objective reality only if it *preserves* objective reality. A principle preserves objective reality only if an object's satisfaction of the concept expressed in the principle's antecedent entails that the object satisfies the concept expressed in the principle's consequent. An abstraction principle (of the form $\langle F+G\rangle_x \rightarrow \langle F\rangle_x$) accordingly preserves objective reality iff object *x* can satisfy <F> in abstraction from <F+G>. So if $\langle F+G\rangle_x \rightarrow \langle F\rangle_x$ does not preserve objective reality, object *x* cannot satisfy <F> in abstraction from <F+G>. In that case, $\langle F\rangle_x$ is as it were bound to $\langle F+G\rangle_x$—<F> is not satisfiable by *x* apart from the role it plays in <F+G>.

My proposal is this: cognition of the objective reality of sensible abstraction principles is impossible because sensible abstraction principles do not preserve objective reality. This proposal draws a cognitive conclusion from a metaphysical premise: no preservation of objective reality, so no cognition of objective reality. Developing this proposal requires addressing the following two questions. First, under what conditions does an abstraction principle fail to preserve objective reality? If this proposal is to make good on the autonomous approach, reason's own principles would have to imply that *sensible* abstraction principles fail to preserve objective reality. So, second, which of reason's principles imply that sensible abstraction principles fail to preserve objective reality? I will take up the first question in this section; the second in the next.

Help in answering the first question comes from strange places. Kant's influential German rationalist predecessor, Crusius, details how the objective reality of abstraction principles are

constrained by *principles of synthesis*. Instead of specifying how concepts decompose into their constituent concepts (like abstraction principles), a principle of synthesis specifies how simpler concepts combine into more complex concepts. For instance, whereas the principle $\langle F+G\rangle_x \rightarrow \langle F\rangle_x$ would be an abstraction principle, the principle $[\langle F\rangle_x+\langle G\rangle_x \rightarrow \langle F+G\rangle_x]$ would be a principle of synthesis; the latter principle expresses the combination of the simpler concepts <F> and <G> into <F+G>.[256]

In overview, Crusius offers the following two insights. First, he postulates non-logical principles of synthesis, which yield non-logically necessary connections among (logically distinct) elements of possibility. These necessary connections are *non-logically* necessary, in that their absence does not entail a contradiction. Second, he astutely notes that an abstraction principle does not preserve objective reality if the abstracted concept (i.e. the concept expressed in the consequent of the principle) stands in a non-logically necessary connection to the other concepts expressed in the principle's antecedent. These two points jointly entail that some abstraction principles do not preserve objective reality. To signpost where this is headed: Kant will inherit these two insights from Crusius. But unlike Crusius' principles of synthesis, Kant's will preclude any *sensible* abstraction principles from preserving objective reality.

As for Crusius' first insight: in addition to the principle of contradiction, Crusius counts the following two non-logical principles of synthesis among the three highest principles of reason (*Weg* §262). These principles offer non-logical constraints on combining the elements of possibility (or the concepts that express these elements) (*Weg* §259-262). Both principles are based on what is (in principle) thinkable and unthinkable to reason (*Entwurf* §58). The first, *the principle of non-combinability*, says that if two concepts cannot be combined in thought (even though their combination entails no

[256] Cf. *Weg* §570-84. Incidentally, some of Kant's earliest uses of "synthesis" occur in his discussion of Crusius (AK 2:293-6).

contradiction), they cannot be combined in reality. An example: "a single point of a body cannot be red and green together [*zugleich*]." (*Weg* §259). No contradiction is entailed by combining <red> and <green> at a single point in a body, yet this combination is nonetheless unthinkable. So given his first non-logical principle of synthesis, it is (non-logically) impossible for these concepts to be combined in reality; no body can satisfy them together. The second, *the principle of inseparability*, says that if two concepts are not separable in thought (even though their separation entails no contradiction), they are not separable in reality. That is, if $<F>_x$ is not thinkable apart from $<G>_x$ (though no contradiction is entailed by the thought of their separation), this principle entails that $<F>_x$ and $<G>_x$ stand in a non-logically necessary connection to each other. For instance, Crusius has us suppose that thing A does not exist at time t_1 but exists at the following time t_2. He claims that it is unthinkable (albeit not contradictory) for thing A to lack a cause. As he says, if "someone said that thing A is generated without a cause, he would say something absurd [*ungereimtes*], but nothing contradictory." (*Weg* §260). So by his second principle, the concept <alteration> stands in a non-logically necessary connection to <having a cause>.[257]

Crusius' anti-logicism, marked by his acceptance of non-logical principles of synthesis, has received attention elsewhere.[258] Nonetheless, the relevance of non-logical principles of synthesis to whether abstraction principles preserve objective reality has gone largely unnoted. The basic idea is this. Suppose that a concept stands in a non-logically necessary connection to another according to non-logical principles of synthesis. Then just as a house would collapse once the pillars supporting it are removed, the former concept is not possible in abstraction from its connection to the latter. The

[257] I will continue using "non-logical possibility" (rather than "real possibility") to denote any kind of alethic possibility that requires compatibility with non-logical principles of synthesis (rather than merely with the principle of non-contradiction). Although it is widely agreed that Kant uses "real possibility" to denote some kind of non-logical possibility, significant disagreement remains about which kind it denotes (i.e. whether it captures non-logical possibility *writ large* or some specific kind of non-logical possibility). The term "real possibility" therefore seems too loaded to be used here in a neutral way. Cf. Stang (2016), Chignell (2017), Watkins and Willaschek (2017), and Abaci (2019).
[258] For discussion of Crusius' anti-logicism (and its influence on Kant), see Heimsoeth (1926), Tonelli (1959), Watkins (2005), Hogan (2009), Anderson (2015), Stang (2016), and Abaci (2019).

principle expressing the abstraction of the former from the latter would therefore not preserve objective reality.

Schematically: suppose that non-logical principles of synthesis entail that <F> is inseparable in reality from its connection to <G> (i.e. <F+G>). In that case, <F> is not satisfiable by object *x* in abstraction from *x*'s satisfaction of <F+G>. Yet as we saw above, an abstraction principle $<F+G>_x \rightarrow <F>_x$ preserves objective reality only if the abstracted concept <F> is satisfiable by *x* in abstraction from *x*'s satisfaction of <F+G>. Thus, since<F> is not satisfiable by *x* in abstraction from *x*'s satisfaction of <F+G>, the abstraction principle $<F+G>_x \rightarrow <F>_x$ does not preserve objective reality.

This point can be framed in Crusius' terminology. Given that <F> is not satisfiable in abstraction from <F+G>, <F> would be (what Crusius calls) *an incomplete abstractum*:

> An incomplete abstractum is such that although it is distinguished from its accompanying abstractum [*Neben:Abstracto*] while one thinks them together, it cannot therefore be abstracted [*absondern*] in thought; that not [*daß nicht*], if one wanted to remove the concept of *that*, then also the concept of *this* must disappear, e.g. subject and power, quantity and quality. […] It can create great errors if one takes incomplete abstracta as separable in reality (*Weg* §127).

Since <F> is not possible in abstraction from <F+G>, the abstraction principle $<F+G>_x \rightarrow <F>_x$ does not preserve objective reality. In Crusius' terminology, $<F+G>_x \rightarrow <F>_x$ would not be a *real principle*. As he explains, "one has the audacity to want to give reality to the concepts themselves, and accordingly confuses merely hypothetical consequences, which one takes from the assumed concepts, with real principles [*Realsätzen*]." (*Weg* §260). To assert $<F+G>_x \rightarrow <F>_x$—even though <F> is not satisfiable by *x* in abstraction from *x*'s satisfaction of <F+G>—would be to

illegitimately "give reality to the concepts themselves." For that assertion would imply that the consequent concept <F> is in fact satisfiable by *x* in abstraction from *x*'s satisfaction of <F+G>.[259]

Thus, since not all abstraction principles preserve objective reality, Crusius discredits the initially tempting thought that abstraction principles automatically preserve objective reality. Taking a principle to preserve objective reality (when it in fact does not) only leads to further errors in subsuming objects under principles ("It can create great errors if one takes incomplete abstracta as separable in reality").. To wit, if one wrongly takes *x* to satisfy <F> in abstraction from its connection to <F+G>, one will be prone to take $<F>_x$ to satisfy the antecedent of further principles that do not build in this restricting condition (i.e. principles of the form $<F>_x \rightarrow <H>_x$). This may lead to outright contradiction (e.g. if the principle $<H>_x \rightarrow <\sim G>_x$ also holds).

In short, then, whether an abstraction principle preserves objective reality depends upon whether the concepts connected in its antecedent are possible in abstraction from their connection. And the latter, in turn, depends upon the non-logical principles of synthesis that constrain the space of (non-logically) necessary connections. Expressed more formally:

(3) Synthetic Constraint on Abstraction: for any (logically distinct) concepts <F> and <G>, the principle $<F+G>_x \rightarrow <F>_x$ preserves objective reality **only if** $<F>_x$ is possible in abstraction from its connection to $<F+G>_x$ (as determined by the principles of synthesis for *x*).

On the one hand, if there are no non-logical principles of synthesis, this constraint would be satisfied for any pair of logically distinct (and thus non-contradictory) concepts. For if there are no non-logical principles of synthesis, any concept is possible in abstraction from its connection to a logically distinct concept (for the reasons laid out in section III). Consequently, abstracting one

[259] Or as Crusius glosses real principles earlier: "In a real principle, one attributes something to the things, which befit them according to their truth." (*Weg* §38). In a real principle, the consequent concept must be attributed to the thing—rather than merely its hypothetical connection to what it is abstracted from.

concept from its connection to the other via an abstraction principle (e.g. $\langle F+G \rangle_x \rightarrow \langle F \rangle_x$) would preserve objective reality; it would yield an independently satisfiable concept ($\langle F \rangle_x$).[260]

On the other hand, if some non-logical principles of synthesis are supposed, the mere fact that two concepts are logically distinct (and thus non-contradictory) does not entail that one is possible in abstraction from their connection to each other. For those concepts could still stand in a non-logically necessary connection to each other (in accordance with non-logical principles of synthesis). And if they do stand in such a connection, the corresponding abstraction principle would still fail to preserve objective reality. To illustrate, grant Crusius' non-logical principles of synthesis. If <F> cannot be thought independently of <G>, then these principles imply that <F> cannot be satisfied in abstraction from <F+G>. The abstraction principle $\langle F+G \rangle_x \rightarrow \langle F \rangle_x$ therefore would fail to preserve objective reality. For instance, consider whether the abstraction principle $\langle \text{alteration+having a cause} \rangle_x \rightarrow \langle \text{alteration} \rangle_x$ preserves objective reality. Supposing that it is not thinkable for an alteration to lack a cause, Crusius' non-logical principles of synthesis imply that <alteration> must stand in a non-logically necessary connection to <having a cause>; any alteration must have a cause. So although the concept <alteration+having a cause> is satisfiable, the abstracted concept <alteration> is not satisfiable in abstraction from <alteration+having a cause>. The abstraction principle $\langle \text{alteration+having a cause} \rangle_x \rightarrow \langle \text{alteration} \rangle_x$ would therefore fail to preserve objective reality.[261]

Now if an abstraction principle does not preserve objective reality, does that imply the principle is false? That would be an absurd implication; *if x is an alteration and x has a cause, x is an alteration* clearly seem true! Fortunately, this implication does not follow. An abstraction principle

[260] Wolff is sometimes read as rejecting all non-logical principles of synthesis. If correct, his view implies that all abstraction principles satisfy the synthetic constraint on abstraction. For discussion, see Cassirer (1907, 525), Longuenesse (1998), Hogan (2009), Anderson (2015), Stang (2016), and Abaci (2019).
[261] Cf. *Weg* §259-60 and §268.

that does not preserve objective reality is still true, since the concept expressed in its antecedent contains the concept expressed in its consequent. Nonetheless, the mere truth of an abstraction principle leaves unsettled whether the concept expressed the its consequent is satisfiable in abstraction from its connection to the concept expressed in its antecedent. That could only be settled by determining what non-logical principles of synthesis there are. In this way, the truth of an abstraction principle is simply not fine-grained enough to establish whether it preserves objective reality or not. For instance, although the abstraction principle *if x is an alteration and x has a cause, x is an alteration* is true, it does not follow that *x is an alteration* is possible in abstraction from its connection to *x has a cause*. It therefore does not follow that this principle preserves objective reality. And insofar as this principle fails to preserve objective reality (in accordance with Crusius' non-logical principles of synthesis), *x is an alteration* cannot be subsumed under the antecedent of further principles that do not express connections among objects that lack a cause. To do so would be to wrongly take "incomplete abstracta as separable in reality." (*Weg* §127).[262]

VI. Sensible Abstraction Principles and Anti-Logicist Idealism

Kant repudiates Crusius' particular non-logical principles of synthesis—based as they are on human reason's unaided power to track what is non-logically possible and impossible through what is thinkable.[263] But far from jettisoning non-logical principles of synthesis altogether, he deems them key to assessing the bounds of our rational cognition. These principles determine "whether we can build at all, and how high we can carry our building with the materials that we have (the pure a priori concepts)." (A738/B766).[264] Kant's claim is unsurprising, on the hypothesis that he follows Crusius

[262] Cruisus' example of an arbitrary (or *non-real*) principle is "a circle does not have more than 360 degrees." (*Weg* §38). This principle is certainly true, since an object cannot satisfy <a circle> without thereby satisfying <has no more than 360 degrees>. But this principle will still fail to preserve objective reality, insofar as <has no more than 360 degrees> is non-logically connected to the other concepts contained in <circle> (in accordance with non-logical principles of synthesis).
[263] Cf. AK 2:293-6, AK 2:342, AK 4:319n, B167-8, AK 4:476n, and AK 28:9-10.
[264] Cf. B19, A10/B23, A14/B28, and A718-22/B746-50.

in adopting the synthetic constraint on abstraction. For in that case, the extent to which abstraction principles preserve objective reality depends upon how concepts can first be combined via non-logical principles of synthesis.

When coupled with this constraint, I will now argue, the non-logical principles of synthesis advanced in the first *Critique* entail that sensible abstraction principles fail to preserve objective reality. In outline, the argument has two parts. First, the non-logical principles of synthesis advanced in the first *Critique*—viz. *the experiential principles of synthesis*—imply that pure concepts are satisfiable among sensible objects only insofar as these concepts stand in non-logically necessary connections with sensible conditions. This implication amounts to (what I will call) Kant's *anti-logicist idealism*. Second, taken together with the synthetic constraint on abstraction, Kant's anti-logicist idealism entails that sensible abstraction principles fail to preserve objective reality. So if this argument succeeds, the ideality of Kant's experiential principles of synthesis ultimately explains why sensible abstraction principles cannot be used to extend well-founded rational cognition of existing objects beyond the bounds of sense.

"Experience," Kant says, "has principles of its form which ground it a priori, namely general rules of unity in the synthesis of appearances, whose objective reality, as necessary conditions, can always be shown in experience, indeed in its possibility." (A156-7/B196). The experiential principles of synthesis advanced in the first *Critique* include not only the *a priori* principles tied to our forms of intuition, but also the *a priori* principles of the understanding—e.g. *all intuitions are extensive magnitudes* (B202) and *all alterations have a cause* (B232). Like Crusius' non-logical principles of synthesis, Kant's experiential principles of synthesis are non-logical constraints on the space of possibility; the necessary connections expressed by these principles do not hold on pain of contradiction.

Yet unlike Crusius' principles of synthesis, Kant's experiential principles of synthesis are restricted to the bounds of sense. This restriction involves the following two dimensions. First,

Kant's experiential principles of synthesis ground the space of possibility only for sensible objects within experience. That is, a sensible object is possible within experience only if (and because) it agrees with these principles: "Whatever agrees with the formal conditions of experience (in accordance with intuition and concepts) is possible." (A218/B265).[265] For instance, sensible objects are possible within experience only if (and because) they agree with the principle of the Second Analogy that *all alterations have a cause*.[266]

Second, experiential principles of synthesis involve the sensible ("schematized") versions of pure concepts. That is, for any pure concept <F> in an experiential principle of synthesis, <F> never appears by itself, but only in necessary connection to some sensible condition. In abstraction from its connection to sensible conditions, a pure concept is not compatible with the experiential principles of synthesis. As Kant puts it, the experiential principles of synthesis are valid "merely as principles of its empirical use, hence they can be proven only as such; consequently the appearances must not be subsumed under the categories per se [*schlechthin*], but only under their schemata." (A180-1/B223). For instance, in the experiential principle of synthesis *all alterations have a cause*, <alteration> and <cause> refer to the sensible concepts of <alteration> and <cause>. So the concept <cause> here contains not only the non-sensible ("pure") content tied to the pure concept of a cause, but also some sensible condition (e.g. <sensible succession>) (A144/B183).

Now given that sensible objects are possible only if they satisfy experiential principles of synthesis and given that experiential principles of synthesis involve the sensible ("schematized") versions of pure concepts, sensible objects in experience satisfy pure concepts only insofar as those concepts stand in necessary connection to sensible conditions. That is, for any pure concept <F>

[265] Cf. A92-4/B125-7, A110-11, A126-8, B163-5, A154-9/B193-8, A267-8/B323-4, and A581-2/B609-10.
[266] I will leave implicit the "within experience" qualification below. Some "non-conceptualist" views (e.g. Allais' 2015) would grant the possibility of sensible objects *sans* the categorial determinations that are constitutive of experience. Yet even if this were granted, sensible objects *sans* such determinations could not furnish cognitions subsumable under principles (as we saw in section II).

satisfiable by a sensible object *x* in experience, <F> must stand in necessary connection to some sensible condition. That is, <F> must be a proper part of a richer concept that includes some sensible condition (of the form <F+S>). As Kant puts this result: "our pure cognitions of the understanding are in general nothing more than principles of the exposition of appearances that do not go a priori beyond the formal possibility of experience […]" (A250).[267]

Thus, like Crusius, Kant is an *anti-logicist*; he accepts *non-logical* principles of synthesis. Yet unlike Crusius', Kant's non-logical principles of synthesis (namely, the experiential principles of synthesis) privilege *sensible* conditions—sensible objects cannot satisfy pure concepts in abstraction from those concepts' connection to sensible conditions. Since Kant's position restricts the satisfaction of pure concepts by sensible objects in this way, it amounts to a form of idealism. Given its combination of anti-logicism and idealism, his position is aptly labelled *anti-logicist idealism*. Expressed more formally:

(4) Anti-Logicist Idealism: for any sensible object *x*, any pure concept <F>, and sensible condition S, it is not the case that $<F>_x$ is possible in abstraction from $<F+S>_x$ (as determined by the experiential principles of synthesis for *x*).

So why should anti-logicist idealism (so construed) be accepted? In brief, Kant argues in the Transcendental Analytic that reason can prove the experiential principles of synthesis only by treating them as ideal. As he recalls, reason "certainly erects secure principles, but not directly from concepts, but rather always only indirectly through the relation of these concepts to something entirely contingent, namely possible experience" (A736-7/B764-5). In effect, anti-logicist idealism is the cost of securing reason's cognition of these principles.[268] I lack the space here to further investigate Kant's argument for anti-logicist idealism or its connection to other idealist theses that

[267] Cf. A92-4/B125-7, A126-8, B163-5, A154-9/B193-8, A180-1/B223, A218/B265, A267-8/B323-4, and A581-2/B609-10.
[268] Cf. Bxvi-Bxxix, A125-7, B163-8, A762/B790, A782-3/B810-11, and AK 4:418-22.

Kant might accept. Rather, my aim here is simply to draw out its critical implications for the possibility of rational cognition.[269]

From this idealist claim, Kant says,

> there emerges a very strange result, and one that appears very disadvantageous to the whole purpose with which the second part of metaphysics concerns itself, namely that with this faculty we can never get beyond the boundaries of possible experience, which is nonetheless precisely the most essential occupation of this science. But herein lies just the experiment providing a checkup on the truth of the result of the first assessment of our rational cognition *a priori*, namely that such cognition reaches appearances only (Bxix).

Rational ignorance, then, allegedly follows from the ideality of the experiential principles of synthesis. Unfortunately, this passage does not spell out *how*. Fortunately, the synthetic constraint on abstraction does. This constraint implies that an abstraction principle (of the form $<F+G>_x \rightarrow <F>_x$) preserves objective reality only if $<F>_x$ is possible in abstraction from $<F+G>_x$. And Kant's anti-logicist idealism implies that it is not possible for sensible objects to satisfy pure concepts in abstraction from its connection to sensible conditions. So taken together, the synthetic constraint on abstraction and anti-logicist idealism entail that sensible abstraction principles (of the form $<F+S>_x \rightarrow <F>_x$) do not preserve objective reality.

Because sensible abstraction principles do not preserve objective reality, the domain of sensible objects satisfying both the antecedent and consequent of a sensible abstraction principle is empty. As Kant concludes, "Without schemata, therefore, the categories are only functions of the understanding for concepts, but do not represent any object. This significance comes to them from sensibility, which realizes the understanding at the same time as it restricts it." (A147/B187).[270] Or to

[269] That Kant endorses anti-logicist idealism at all would be disputed by some. On those interpretations, Kant is not an idealist about *all* the features of sensible objects insofar as they are given in experience (e.g. their causal features). See, for instance, Langton (1998, 210-8). I cannot engage with these interpretations here, except to say that they cannot avail themselves of the argument for rational ignorance that I offer below. This is indeed a cost of these interpretations, insofar as their alternative arguments for rational ignorance face the problems with heteronomous interpretations raised in section IV.

[270] Cf. A146/B186, A155-6/B194-5, A240-2/B299-301, A247-8/B304-5, and B308.

put Kant's conclusion in Crusius' terminology: pure concepts in abstraction from their connection to sensible conditions are incomplete abstracta. Indeed, the fact that a sensible object *x* satisfies <F+S> does not even entail the disjunctive claim that *x* must satisfy either the pure concept <F> or its corresponding negation <~F>. A disjunctive sensible abstraction principle of the form $<F+S>_x \rightarrow [<F>_x \vee <\sim F>_x]$ is therefore no more objective reality-preserving than any other sensible abstraction principle. In this sense, sensible objects may not even be *determinable* with respect to pure concepts. As Kant puts this implication: "If this condition of the power of judgment (schema) is missing, then all subsumption disappears; for nothing would be given that could be subsumed under the concept. The merely transcendental use of the categories is thus in fact no use at all, and has no determinate or even, as far as its form is concerned, determinable object." (A247-8/B304).[271]

The larger upshot is that because sensible abstraction principles do not preserve objective reality (as the synthetic constraint on abstraction and Kant's anti-logicist idealism entail), rational cognition cannot be extended beyond possible experience via sensible abstraction principles. With this result in hand, all the pieces are now in place to fully state Kant's master argument for rational ignorance.

VII. Rational Ignorance Reconstructed

Postulate principles about objects beyond possible experience to your heart's content. Kant's argument for rational ignorance can grant that they are true and even cognizable. The problem remains that no rational cognition of existing objects will be wrought through them. For if a series of rational cognition is to remain tethered to existing objects, it must begin with immediate, experiential cognitions (per the well-foundedness constraint from section II). Extending a well-

[271] This implication is compatible with the law of excluded middle. Cf. Stang (2012). I take this implication of my proposal as a point in its favor. For on at least one reading of the Antinomies chapter, sensible objects (in virtue of their ideality) can be indeterminate with respect to certain pure concept pairs. For instance, the sensible world need not be either a finite whole or an infinite whole. Cf. A406-7/B433, A483-4/B511-2, A500-1/B528-9, A504-10/B532-8, A514/B542, A521-2/B549-50, and A526-7/B554-5. For discussion of the connection between idealism and indeterminacy, see Malzkorn (1999), Willaschek (2018), and Jauernig (2021).

founded series of rational cognitions to objects beyond possible experience would require first isolating their non-sensible content via sensible abstraction principles (per the sensible abstraction constraint from section III). But an abstraction principle preserves objective reality only if the abstracted concept (expressed in the principle's consequent) is satisfiable in abstraction from what it is abstracted from (per the synthetic constraint on abstraction from section V). Yet the ideality of Kant's experiential principles of synthesis implies that sensible abstraction principles cannot meet this constraint, and thus that they do not preserve objective reality (per Kant's anti-logicist idealism from section VI).

The same argument expressed more formally:

The Transcendental Analytic's Master Argument for Rational Ignorance

(1) Well-Foundedness Constraint: for any rational cognition α in a series of rational cognitions $\alpha_1, \alpha_2 \ldots \alpha_n$, α's objective reality is cognizable **only if** $\alpha_1, \alpha_2 \ldots \alpha_n$ terminates in an immediate, experiential cognition α_x.

(2) Sensible Abstraction Constraint: the objective reality of a rational cognition of an object beyond possible experience from α_x (where α_x=an experiential cognition of sensible object *x*) is cognizable **only if** it is possible to cognize the objective reality of sensible abstraction principles (i.e. of the form $<F+S>_x \rightarrow <F>_x$).

(3) Synthetic Constraint on Abstraction: for any (logically distinct) concepts <F> and <G>, the principle $<F+G>_x \rightarrow <F>_x$ preserves objective reality **only if** $<F>_x$ is possible in abstraction from $<F+G>_x$ (as determined by the principles of synthesis for *x*).

(4) Anti-Logicist Idealism: for any sensible object *x*, any pure concept <F>, and sensible condition S, it is not the case that $<F>_x$ is possible in abstraction from $<F+S>_x$ (as determined by the experiential principles of synthesis for *x*).

(5) No sensible abstraction principle preserves objective reality [and *a fortiori* it is not possible to cognize the objective reality of sensible abstraction principles]. **(from 3, 4)**

(6) It is impossible to cognize the objective reality of a rational cognition of an object beyond possible experience from α_x (where α_x=an experiential cognition of sensible object x). **(from 2, 5)**

∴ It is impossible to cognize the objective reality of a rational cognition of an object beyond possible experience. (**from 1, 6)**

All the premises of this argument are found in the Transcendental Analytic itself. So precisely as Kant claims, the Transcendental Analytic contains an argument that, if sound, would show "that all the inferences that would carry us out beyond the field of possible experience are deceptive and groundless" (A642/B670).

The soundness of this argument remains an open question. It is undoubtedly a long argument, in Ameriks' (2003, 136) sense of an argument that runs through "the actual long and complex steps that Kant lays out" in the Analytic and elsewhere. Yet for our troubles we win an argument that respects reason's autonomy. As I have highlighted, the constraints on rational cognition expressed in premises (1)-(3) were also accepted by Wolff and Crusius, two of Kant's most influential German rationalist predecessors. So in this respect, his argument for rational ignorance neither talks past them nor begs the question against them. They cannot cry foul that reason is being hobbled through contrived constraints on its cognition. Rather, their core disagreement comes down to whether these constraints on rational cognition are satisfied or not. That, in turn, comes down to what reason's principles are. If Kant's anti-logicist idealism holds, the experiential principles of synthesis that constrain the form of possible experience are rationally cognizable only if (and because) they are ideal. If Kant is accordingly correct in asserting premise (4), the verdict of rational

ignorance follows. Since this verdict is reached autonomously—through reason's own principles—any self-respecting rationalist would have to accept it.

If this argument is sound, what happens when the traditional rationalist looks to extend cognitions of existing objects by means of reason's (absolutely) pure principles? Since the antecedents of such principles express pure concepts, the requisite cognitions of objects needed to satisfy these antecedents would have to satisfy pure concepts. Are such cognitions available? On the one hand, such cognitions cannot be found among immediate, experiential cognitions. For only *sensible* concepts can be predicated in experiential cognitions. On the other hand, such cognitions cannot be rationally inferred from experiential cognitions. For per premise (2) of the argument, the requisite inference would require the application of sensible abstraction principles. Yet per premise (5) of the argument, sensible abstraction principles do not preserve objective reality. Applying sensible abstraction principles would therefore fail to yield a rational cognition of an existing object satisfying pure concepts in abstraction from its connection to sensible conditions. So in either case, Kant's master argument leaves the traditional rationalist without cognition of existing objects to subsume under the antecedents of (absolutely) pure principles. In precisely this sense, we lack cognition of the antecedent objective reality of such principles. For all we can cognize, the domain of existing objects that satisfy the antecedents of such principles might well be empty. Thus, no existing objects can be rationally cognized through such principles. As Kant puts this result: "Principles of pure reason, on the contrary, cannot be constitutive even in regard to empirical concepts, because for them no corresponding schema of sensibility can be given, and therefore they can have no object in concreto." (A664/B692).

To illustrate how the traditional rationalist runs afoul here, consider a toy version of the cosmological argument. One might start with the principle *all contingent beings have a necessary first cause*. Insofar as this principle is absolutely pure, its concepts of <contingency> and <necessity> cannot

have any sensible content. This principle accordingly refers to the *pure* concept of <contingency>, viz. "the not-being of which is possible" (A243/B301)." Grant that this principle is true (perhaps even demonstrably so). Even then, the existence of a necessary first cause cannot be rationally cognized through this principle until the principle's objective reality is cognized. Cognizing the principle's objective reality would first of all require cognizing the existence of a contingent being. Now it is certainly tempting to think that such cognition is possible. After all, sensible objects are contingent. Yet immediate cognition of contingency among sensible objects requires attributing the *sensible* concept of contingency to them. The sensible concept of contingency has sensible content, which involves being alterable across sensible times (A460/B488).

Yet even if a sensible object satisfies the sensible concept <contingency+S>, it does not follow that a sensible object satisfies the abstracted pure concept <contingency>. To the contrary, the sensible constraint on abstraction and anti-logical idealism jointly entail that sensible abstraction principles do not preserve objective reality. *A fortiori*, the sensible abstraction principle $\text{<contingency+S>}_x \rightarrow \text{<contingency>}_x$ does not preserve objective reality. Since this principle does not preserve objective reality, cognition of existing objects that satisfy the pure concept of contingency cannot be inferred from our immediate, experiential cognition of contingent sensible objects. This result, together with the well-foundedness constraint, entails that the objective reality of the absolutely pure principle *all contingent beings have a necessary first cause* is uncognizable; we cannot cognize that there are any existing objects that satisfy the antecedent of this principle. So even if this principle is true, the existence of a necessary first cause cannot be rationally cognized through it. As Kant tersely puts this line of reasoning: "Thus the succession of opposed determinations, i.e., alteration, in no way proves contingency in accordance with concepts of the pure understanding,

and thus it also cannot lead to the existence of a necessary being in accordance with pure concepts of the understanding. Alteration proves only empirical contingency" (A460/B488).[272]

Despite its strengths, one might worry that my proposed reconstruction of the Transcendental Analytic's master argument for rational ignorance would prove too much. Specifically, one might worry that since this reconstruction entails that it is impossible for sensible objects to satisfy pure concepts in abstraction from its connection to sensible conditions, it entails that pure concepts cannot be satisfied by objects independently of sensible conditions. This implication would be very difficult to square with Kant's position. For on the one hand, Kant maintains that *non-sensible objects* can be meaningfully thought (albeit not cognized) as satisfying a pure concept independently of its connection to sensible conditions. For instance, the existence of God is thinkable (A696/B724). On the other hand, Kant maintains that *sensible objects* can also be meaningfully thought (albeit not cognized) as satisfying a pure concept independently of its connection to sensible conditions. For instance, they can be thought as being the effects of transcendentally free causes, which are not subject to sensible conditions (A532-59/B560-87). Yet both of these aspects of Kant's position would be precluded if pure concepts cannot be satisfied by objects independently of sensible conditions.

Fortunately, my proposal does not imply that pure concepts cannot be satisfied by objects independently of sensible conditions. First, consider non-sensible objects. Since non-sensible objects are not subject to sensible conditions in the first place, we need not think of non-sensible objects as satisfying pure concepts by means of sensible abstraction principles. Instead, we can directly think of non-sensible objects as satisfying pure concepts without any sensible conditions. These thoughts will be meaningful. They might even be true. For instance, if it turns out that a necessary first cause exists, the thought *a necessary first cause exists* will be true. Nonetheless, these thoughts cannot amount

[272] Cf. B289-91, A243-4/B301-2, A415/B442, A458/B486, and A609-10/B637-8.

to rational cognitions. For as we have just seen, they cannot be traced back to immediate, experiential cognitions—and thus their objective reality remains uncognizable.

Second, consider sensible objects. Even if it is impossible for sensible objects to satisfy pure concepts *in abstraction from* sensible conditions (as I have just argued), it does not follow that it is impossible for sensible objects to satisfy pure concepts without sensible conditions *simpliciter*. This point latches onto Kant's fine-grained distinction between two different kinds of ascent beyond possible experience: the *logical* ascent and the *real* ascent (AK 8:216). The logical ascent is described as follows: "This ascent (if that can be called an ascent which is only an abstraction from the empirical in the use of the understanding in experience, since that still leaves the intellectual, namely the category, which we ourselves, in accordance with the nature of our understanding, have installed *a priori* beforehand) is only *logical*" (AK 8:216). The logical ascent abstracts out pure concepts from their connection to sensible conditions via sensible abstraction principles (of the form $\langle F+S \rangle_x \rightarrow \langle F \rangle_x$). The logical ascent has been the focus of our investigation. If my proposal is correct, the logical ascent does not preserve objective reality—rendering it impossible for sensible objects to satisfy pure concepts in abstraction from sensible conditions.

Unlike the logical ascent, the real ascent does not attribute pure concepts to sensible objects *without connection to* sensible conditions. Rather, the real ascent attributes pure concepts *with connection to* non-sensibly intuitable concepts or features, i.e. features that could only be intuited in a non-sensible way. As Kant says: "For the true *real* ascent, namely to another species of being that can in no way be given to the senses, not even to the most perfect, another mode of intuition would be needed, which we have named intellectual." (AK 8:216). Schematically, the real ascent moves from $\langle F+S \rangle_x$ to $\langle F+I \rangle_x$—where <I> adds in positive non-sensibly intuitable content. $\langle F+I \rangle_x$ is not an abstraction from $\langle F+S \rangle_x$ at all, but rather introduces a different way of immediately representing the very same sensible object *x*. So whereas the logical ascent abstracts away sensible conditions (via

sensible abstraction principles of the form $<F+S>_x \rightarrow <F>_x$), the real ascent adds non-sensible conditions (via additive principles of the form $<F+S>_x \rightarrow <F+I>_x$).

What does my proposal imply about objects that are thought through the real ascent? On the one hand, it does not preclude the possibility of such objects. That is, even though a sensible object *x* cannot satisfy <F> in abstraction from <F+S> (if my proposal is correct), it does not thereby follow that *x* cannot satisfy <F+I>. In other words, the impossibility of $<F>_x$ is compatible with the compossibility of $<F+S>_x$ and $<F+I>_x$. By extension, the real ascent enables us to think of sensible objects as satisfying pure concepts in a non-sensible way. This allays the worry that my proposal renders such ascriptions meaningless or false. For instance, the real ascent enables us to think of sensible objects as having a sensible cause *and* a non-sensible cause. I can think of the teacup that was just carelessly broken (=*x*) as an effect of a sensible cause ($=<F+S>_x$), but also as an effect of a non-sensible cause ($=<F+I>_x$). Since $<F+I>_x$ is not an abstraction from $<F+S>_x$, nothing precludes this thought from veridically representing the world.

On the other hand, Kant wants to deny that the real ascent provides a hidden path to cognition of non-sensibly intuitable features. Although his argument here is deserving of its own investigation, it might be taken to run as follows. Extending our cognition through the real ascent would require cognition of the additive principles of the above form ($<F+S>_x \rightarrow <F+I>_x$). Because additive principles attribute positive non-sensibly intuitable features to sensible objects (rather than merely abstracting pure concepts), they would be synthetic. This makes them fundamentally different from sensible abstraction principles. Now since additive principles are synthetic, there must be some "third thing" in virtue of which the connection by the principle in question (represented by "→") obtains. This is simply an application of Kant's point that any synthetic proposition requires some "third thing" in virtue of which the connection of concepts represented in it obtains. As he

puts it: "Where is the third thing that is always requisite for a synthetic proposition in order to connect with each other concepts that have no logical (analytical) infinity?" (A259/B315).

Since experiential principles of synthesis express connections involving sensible intuition, the third thing in that case involves sensible intuition.[273] *Mutatis mutandis*: since the additive principles express connections involving non-sensible intuition, the third thing in this case will involve non-sensible intuition. But as we saw in section II's investigation of the well-foundedness constraint, Kant denies that we have any cognitive access to non-sensible forms of intuition. If he is correct about that, no cognition of the requisite additive principles will be possible for us. Given this and given that cognition through the real ascent would require cognition of additive principles, no cognition through the real ascent will be possible. So construed, his argument against the extension of our cognition through the real ascent hinges on his denial of our having non-sensible forms of intuition—precisely as the rest of the above passage indicates: "But who could provide us with such an intuitive understanding, or can acquaint us with it, if it somehow lies hidden within us?" (AK 8:216).[274]

VIII. Conclusion

If my reconstruction of Kant's master argument for rational ignorance in the Transcendental Analytic succeeds, the bounds of rational cognition are not to be explained through imposing constraints on immediate, experiential cognition onto reason (*pace* the prevailing heteronomous approach). Rather, Kant's argument ambitiously aspires to explain the bounds of rational cognition *autonomously*—through reason's "own eternal and unchangeable laws." (Axii). Now reason (being the reasonable faculty it is) offers the aspiring rationalist the following plea deal: accept the ideality of the experiential principles of synthesis. By accepting this, she can preserve rational cognition of

[273] Cf. A155-7/B194-6, A217/B264, A732-3/B760-1, and A766/B794.
[274] Cf. A252-6/B309-12 and A286-8/B342-4.

these principles. Yet this plea deal requires her to relinquish the traditional rationalist's aspiration to extend rational cognition beyond the bounds of sense. To be saved, rational cognition must be restrained. The aspiring rationalist must forever "subject [her] reason, which does not gladly suffer constraint in its fits of lust for speculative expansion, to the discipline of abstinence." (A786/B814).

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