

(Forthcoming in the *Southern Journal of Philosophy*)

Kant's Regulative Metaphysics of God and the Systematic Lawfulness of Nature

Abstract

In the 'Appendix to the Transcendental Dialectic' of the Critique of Pure Reason, Kant contends that the idea of God has a positive regulative role in the systematization of empirical knowledge. But why is this regulative role assigned to this specific idea? Kant's account is rather opaque and this question has also not received much attention in the literature. In this paper I argue that an adequate understanding of the regulative role of the idea of God depends on the specific metaphysical content Kant attributes to it in the Critique and other writings. I show that neither a heuristic principle of conceptual systematicity, nor conceiving God as a hypothesis of an intelligent designer, can satisfy the demands of reason to make the unity and necessity of the laws of nature intelligible. Regarding the positive account about the metaphysical content of the idea of God, I support my argument by referring to Kant's pre-critical discussion of the usefulness of the conception of God for the project of science, and by expounding Kant's critical account of the necessity of the laws of nature. Thus my account sheds light on the continuity of Kant's conception of God and his appropriation of his own rationalistic metaphysics.

Keywords: Kant, God, regulative ideas, laws of nature

Introduction

In the ‘Appendix to the Transcendental Dialectic’¹ of *the Critique of Pure Reason*², Kant argues that the idea of God has a positive regulative role in the systematization of empirical knowledge. But why is this regulative role assigned to this specific idea? How is the content of the idea of God, presented in the *Critique* as the *Ideal of Reason*³, related to its regulative role? Kant’s account is rather opaque, and this question has also not received much attention in the literature⁴. In this paper, I argue that the regulative role of the idea of God cannot be understood only by reference to the *Appendix* and that an adequate understanding of it depends on the specific metaphysical content Kant attributes to it in other places. Since the *Ideal* in the *Critique* is continuous with the pre-critical conception of God as the ground of all possibility, I argue that the relation between the metaphysical content of the idea of God to its regulative role is also continuous with Kant’s pre-critical account of the usefulness of this conception for the project of science. Thus in addition to showing the unity within the *Critique* between the *Ideal* and the *Appendix*, my account also sheds light on Kant’s appropriation (rather than the mere dismissal) of his own rationalistic metaphysics, transforming it to express regulative principles of rational inquiry.

I proceed as follows. In section 1 I briefly present Kant’s account of the regulative use of reason in the *Appendix* and point to the difficulty in making sense of Kant’s claim that the idea of

¹ Henceforth *the Appendix*.

² I cite Kant from the Akademie edition by reference to volume and page number. Quotations from the *Critique of Pure Reason* are cited by the standard (A/B) pagination. I mostly use the translations of the Cambridge edition of Kant’s works (Kant 1992, Kant 1998, Kant 2000, Kant 2001, Kant 2003). I will use the following abbreviations: OPA= *The Only Possible Argument in Support of a Demonstration of the Existence of God*; NE= *A New Elucidation of the First Principles of Metaphysical Cognition*; CJ= *Critique of the Power of Judgment*; LPR= *Lectures on the Philosophical Doctrine of Religion*.

³ Henceforth *the Ideal*.

⁴ Readers of the *Ideal* focus mostly on its relation to the proofs for the existence of god and the transcendental illusion. Readers of the *Appendix* focus mostly on the epistemic status of the principle of systematic unity and take for granted its relation to the idea of God. Boehm 2012 mentions that the *Ideal* has a regulative role but does not explain in detail in virtue of what it can play this role. Other recent exceptions are Zuckert 2017 and Massimi 2017, which I will mention below.

God is related to the systematic unity of the laws of nature. I show that dismissing this claim and focusing on the merely methodological principle of systematic unity, is not sufficient for understanding Kant's aim in the text. In section 2 I argue that the natural way of conceiving the regulative role of the idea of God as a hypothesis of an intelligent designer, a 'wise author of nature', is also not consistent with the demands of reason. In order to show that the regulative use assumes a specific metaphysical content, I present in section 3 Kant's construal of the theoretical conception of God as the *Ideal of Reason* and its continuity with the pre-critical proof for the existence of God as the ground of possibility. I show that also for the pre-critical Kant God is regarded as the ground of the unity of the laws of nature, in virtue of being the ground of all essences. In section 4 I present one option for understanding the modal status of particular laws of nature in Kant's critical philosophy. I argue that the regulative role of the idea of God should be understood in relation to their presupposed yet indemonstrable necessity. Finally, I suggest a generalization of this account as an approach Kant introduces to a certain kind of metaphysics, an approach I dub as 'regulative metaphysics'.

1. The Regulative Use of Reason in General

In Kant's taxonomy of the faculties of cognition, reason is 'the faculty of principles' (A299/B356), in contrast with the understanding which is the faculty of concepts. While the understanding is the faculty of applying concepts to objects, reason is a faculty of inferences, deriving propositions about particulars from general ones. But in addition to its logical use, this faculty also has a metaphysical import. Reason seeks to establish all knowledge, theoretical and practical, on rational principles *as if* it were a conclusion of a demonstrative inference. To render these inferences completely rational, reason demands unconditioned principles in relation to which everything else is conditioned. Thus the general maxim of reason is 'to find the unconditioned for conditioned

cognitions of the understanding' (A307/B364). The dialectic part of the 1st Critique shows that the use of this principle to gain knowledge about objects such as the soul, the world-whole, and God, is illusory and that the inferences attempting to do that are fallacious.

Nevertheless, the principle of reason expresses a rational interest and also has a legitimate positive use which is regulative. This role is worked out in the first part of the *Appendix*. Because reason is concerned with the relations between concepts, its goal is to relate all of them in one system:

If we survey the cognitions of our understanding in their entire range, then we find that what reason quite uniquely prescribes and seeks to bring about concerning it is the **systematic** in cognition, i.e., its interconnection based on one principle (A645/B673)

How can the task of systematization be understood from the general principle of reason to seek the unconditioned? In the logical use of reason, propositions about particulars are derived from universal ones. In the regulative use of reason for empirical cognitions, reason seeks the inferential conditions of empirical concepts, meaning higher concepts from which they can be derived and lower concepts which further specify them. This is the 'hypothetical use of reason' (A647/B675). The method of progress in the formation of empirical knowledge is construed here as hypothetical-deductive. By hypothesizing a systematic unity among concepts and putting it to the test, it is possible to infer further concepts from those that are already given. Reason employs various heuristic methodological principles in its derivation of new concepts. For example, for some given empirical concepts, reason prescribes the task to look for a higher concept that unites them. Similarly, there are maxims prescribing to further specify any given concept into sub-concepts and to establish continuity between concepts by looking for intermediate ones. These are the maxims of homogeneity, specification, and continuity which describe, so to speak, the directions for investigation in achieving comprehensive and systematic knowledge (A657-8/B685-6).

It is important to note here that by a system Kant does not mean an aggregate of concepts, but a certain kind of part-whole relations among concepts. In a system the parts are conditioned (or determined) by the unifying principle of the whole, but the whole is not to be equated with the composition of the parts. Thus the parts are dependent on the whole while in relation to the parts the whole is *unconditioned*. Kant designates the unifying principle of such a whole by the term ‘idea’:

[W]hat reason quite uniquely prescribes and seeks to bring about concerning it is the **systematic** in cognition, i.e., its interconnection based on one principle. This unity of reason always presupposes an **idea** the form of a whole of cognition, which precedes the determinate cognition of the parts and contains the conditions for determining *a priori* the place of each part and its relation to the others. Accordingly, this idea postulates complete unity of the understanding's cognition, through which this cognition comes to be not merely a contingent aggregate but a **system** interconnected in accordance with necessary laws. (A645/B673 emphasis mine)

I understand by a system, however, the unity of the manifold cognitions under one idea (A832/B860)

The distinction between an aggregate of concepts and a system of concepts derivable from an idea is the distinction between mere technical knowledge and a true *a priori* science (A832/B860). In the empirical sciences, we can never attain *a priori* systematic cognition because they accumulate and refine their concepts in a piecemeal fashion rather than derive them from ultimate principles. Nevertheless, the notion of an idea as a systematic whole serves to designate the goal towards which empirical science strives and thus directs inquiry towards theories that increase the unity between available empirical concepts. The meaning of ‘idea’ as a system of cognitions unified by a single principle is therefore a manifestation of reason’s task to seek for the unconditioned. Yet here the use of reason is legitimate because it does not infer the existence of an unconditioned object, but only uses the idea of a system to derive hypotheses about new concepts to be empirically confirmed. Thus in the heuristic use the various regulative principles of reason (or in general the principle of systematic unity), are what Kant calls logical or formal: they concern only the relations between concepts and do not determine the content or objective reference of those concepts.

Thus far, Kant's account of the role of reason in the *Appendix* seems a plausible (if simplistic) view about the project of science and its heuristic devices, and many would be happy to leave it at that. But in addition to the generic use of the term 'idea' for a systematic body of knowledge, Kant claims that theoretical reason leads to three specific ideas: the soul, the world-whole, and God. In the *Transcendental Dialectic*, Kant criticizes the arguments purporting to attain knowledge of these ideas. But in the *Appendix*, as with the faculty of reason in general, Kant also finds for these special ideas a positive regulative use. While Kant's explicit aim is to secure a regulative role for all three ideas, the text implies that the idea of God has a more significant role⁵. Textually, the regulative use (and misuse) of the idea of God is discussed at greater length than the other two ideas (A675-82/B703-10, A686-701/B714-729). But there are also systematic reasons for the emphasis on the idea of God in comparison with other two ideas.

The psychological idea of the soul has a regulative role in unifying the appearances of inner sense and distinguishing them from empirical concepts of external objects (A682-4/B710-2)⁶. Similarly to the idea of God, it is an idea of a systematic unity. Its scope, however, is limited to the domain of a subject's representations and unrelated to the rest of nature. Regarding the cosmological idea, it would seem that the idea of the totality of phenomena should have some relation to the scientific investigation of nature. But making positive claims about the world-whole as a determined object is not only an unjustified result of a dialectical illusion, but also leads to contradictions, the antinomies⁷. The concept of the world-whole is too indeterminate. For example

⁵ This claim is also hinted in Zuckert 2017: 91n4.

⁶ The regulative role of the psychological idea has puzzled interpreters because of Kant's claim in MFNS that psychology cannot become a proper science (MFNS 4:471). For a recent discussion and defense of the importance of the idea of the soul see Kraus 2018.

⁷ Although the psychological and theological ideas lead to dialectical illusions and the arguments establishing their existence are fallacious, they do not lead to contradictions as the cosmological ideas: 'there is not the least thing to hinder us from assuming these ideas as objective and hypostatic, except only the cosmological ones, where reason runs up against an antinomy when it tries to bring this about (the psychological and theological ideas contain nothing of that sort at all).' (A673/B701).

reason cannot decide whether phenomenal series are finite or infinite. Thus it cannot express any kind of systematic unity prescribed by reason. The cosmological idea has a regulative role, but it is merely negative, prescribing to regard all series of conditions in experience (spatial, temporal or causal) as indefinitely extendable: ‘...in the explanation of given appearances (in a regress or ascent), we ought to proceed as if the series were in itself infinite, i.e., proceed *in indefinitum*’ (A685/B713)⁸. To sum up, the idea of God and the idea of the soul are both positive ideas of unities, but they differ in scope and hence in significance. The idea of the world, however, differs in kind. It is not an idea of unity representable as a single entity, but rather a negative idea of indefinite extendibility.

In contrast with the other two ideas, the idea of God is tied from the outset to the idea of a *system*, the general aim of reason. We see this first in the derivation of the three ideas from the forms of logical syllogism at the beginning of the *Dialectic*. Reason forms the idea of God by seeking the unconditioned for ‘the disjunctive synthesis of the parts in a **system**’ (A323/B379). In the *Appendix* the idea of God is connected specifically to a system of nature, of everything in the world:

[T]he idea of that being [God], means nothing more than that reason bids us consider every connection in the world according to principles of a systematic unity (A686/ B714)

But if prescribing a principle of systematic unity is the role of reason in general, and the generic term ‘idea’ just means a system of cognitions derivable from one principle, why is there a need to appeal specifically to the idea of God in relation to the systematicity of nature? One may think that the tight connection between God and systematicity is unfounded, perhaps motivated by Kant’s architectonic obsession to find some use for the theoretical idea of God rather than dismiss it as a

⁸ See also Rauscher 2010: 299.

useless illusion⁹. Others think that Kant is motivated to find some role for the idea of God in order to pave the way for its more significant practical-moral use¹⁰. I will show, however, that the metaphysical content of the idea of God is uniquely qualified to express the project of systematization described in the *Appendix*¹¹.

The first step in my argument is to consider the scope of the regulative principles of reason. Kant first presents them as heuristic methodological principles directing hypotheses about the formation of new concepts. These are the maxims mentioned above of unity, specification, and continuity. But later on, Kant denies that the overarching principle of systematic unity can be regarded *merely* as a methodological principle:

[I]t cannot even be seen how there could be a logical principle of rational unity among rules unless a transcendental principle is presupposed, through which such a systematic unity, as pertaining to the object itself, is assumed a priori as necessary ... For then reason would proceed directly contrary to its vocation, since it would set as its goal an idea that entirely contradicts the arrangement of nature. (A650-1/B679-80)

Kant contends here that a logical heuristic principle presupposes a transcendental principle, i.e., one that makes a claim about the content of cognition and assumes that things in nature are part of one system¹². This assumption cannot be inferred from experience because the unconditioned maximal unity it prescribes cannot be met in the conditioned objects of experience. Yet without assuming that the ends set by reason are attainable, it would be irrational to use heuristic principles

⁹ McLaughlin, for example, describes Kant's aim in the *Appendix* like this: 'How can I productively employ this stuff [ideas of reason] that I cannot get rid of anyway?' (McLaughlin 2014: 556). Briesen is uncommitted to the significance of the relation between God and systematicity, though he acknowledges it is important for Kant (Briesen 2013). Grier emphasizes the positive role of the illusion inherent in the idea of God but does not explain how this role is related to the content of the idea (Grier 2001).

¹⁰ This is what Longuenesse suggests (Longuenesse 2005: ch. 8, especially p. 233).

¹¹ Zuckert 2017 aims to explain the relation between the idea of God and the regulative principle of systematicity, but her explanation focuses mainly on ideas of reason in general and less about the idea of God in particular. The account given for the role of the idea of God leans towards the notion of purposive design (95-6), which I will criticize in the next section.

¹² By 'transcendental' Kant does not necessarily mean here that the assumption is a condition of experience, but only that in contrast with the logical use of reason it refers to objects. See also Kant's distinction between the logical and the transcendental uses of reason (B362).

directed towards those ends. This argument is puzzling, and making sense of it requires specifying the epistemic status of this assumption in a way that does not contradict Kant's main point in the *Dialectic* that the demands of reason do not have an objective purport¹³. Some interpreters offer arguments on behalf of Kant to justify the necessity of the principle of systematicity, hence giving it a transcendental status, constitutive of empirical cognition in general (though not constitutive of specific objects). Others restrict its status to an inescapable illusion that is still heuristically conducive¹⁴. I will not address this debate here. But whatever position one takes on this question, there remains a question about the role the idea of God plays: what is this significance of the regulative idea that the principle of systematic unity does not express¹⁵?

Regarding the degree of systematic unity, Kant claims that reason cannot be satisfied with a heuristic principle that only aims at increasing the systematicity of cognitions, without thereby setting an end of maximal systematicity: a merely heuristic principle 'is not consistent with the aim of a perfect systematic unity in our cognition, to which reason at least sets no limits' (A675/B703). This end goal of reason is the 'idea of the **maximum** of division and unification of the understanding's cognition in one principle' (A665/B693 emphasis mine). A maxim for increasing systematicity can be merely subjective, a heuristic guide for our inquiries. But the conception of maximal systematicity is necessarily about nature rather than about our heuristic principles. Thus it leads to an idea about the metaphysical ground of this property of nature (without demonstrating its objective existence).

¹³ Some argued that this cannot be done and that the *Appendix* is hopelessly incoherent. For example Smith 1923: 548ff.

¹⁴ For example, Geiger 2003 argues for the strong transcendental reading, while Pickering 2011 rejects it.

¹⁵ I believe that this question poses a challenge for the stronger constitutive readings of the *Appendix*. Since any constitutive role assigned to the principle of systematic unity cannot amount to a proof for the existence of God, such readings ought to leave some room for the extra work the idea of God is doing which surpasses the conditions of possible experience.

As explained above, reason demands explanatory completeness for any given piece of knowledge, and this gives rise to the heuristic principles seeking it. When applied to scientific knowledge, nature is supposed here to be explainable according to ‘a **system** interconnected in accordance with **necessary laws**’ (A645/B673 emphasis mine). Thus there are *two* features that reason’s goal of explanatory completeness attributes to the laws of nature: maximal systematicity and necessity. The regulative idea of reason should, therefore, express the aptness of the laws of nature to these demands. Although the *Appendix* is mostly concerned with the first feature, systematicity, in section 4 I will show that the necessity of the laws of nature is also implied in the text, and explain how it is related to the content of the idea of God.

I conclude that merely heuristic principles cannot fully express the demands of reason indicated above, the maximal systematicity and necessity of the laws of nature. This conclusion provides initial motivation to consider Kant’s claim that in respect to nature in general, a certain conception of God expresses the presupposition of a metaphysical ground of maximal and necessary systematicity.

2. God and Purposive Design

But what is the relation between the idea of God and the systematicity of nature? One natural way to think about it is through the image of an intelligent creator designing nature purposefully. Under this reading, because reason seeks systematic unity for our empirical knowledge, it is useful to form the hypothesis that the world was created by an intelligent being, a ‘wise author of nature’. Call this the hypothetical use of the idea of God. Several passages in the *Appendix* seem to support such a reading of the use of the idea, for example:

This highest formal unity that alone rests on concepts of reason is the **purposive** unity of things; and the speculative interest of reason makes it necessary to regard every ordinance in the world **as if** it had sprouted from the **intention** of a **highest reason**. (A686/B714)

Even though such formulations are repeated throughout the *Appendix*¹⁶, I argue that the notion of an intelligent designer cannot explain the full significance of the idea of God, but only its subjective correlate for heuristic uses. I present three reasons for the inadequacy of the notion of an intelligent designer. The first is related to the object purportedly referred to by the idea of God, the second to epistemic conditions on the formations of hypotheses, and the third to the relation between God and the necessary laws of nature.

The notion of an intelligent designer is the one whose existence is purportedly established in the physico-theological proof. This proof appeals to signs of purposive order in the world that cannot be explained by natural laws in order to infer the existence of an intelligent creator (A625/B653). The first problem with this notion of God is raised in the refutation of the physico-theological proof. Even when conceding the plausibility of the merely probabilistic proof, at most it can support an empirical hypothesis about a very powerful and intelligent being, but not the God of rational theology, a necessary maximally perfect being, ‘an all sufficient original being’ (A627/B655). Thus the concept of a powerful and intelligent designer is not an idea of reason at all, i.e., it is not a concept of an unconditioned ground not representable in possible experience. Rather, it is an imaginary *empirical* concept. As such, it can bear no relation to reason’s goal of finding the unconditioned ground for the systematicity of nature. It might be the case that the idea of God also contains the properties of an intelligent designer, but as I will show next, it is not these properties in virtue of which the idea of God indicates the ground of the systematicity of nature.

¹⁶ Also in A671/B699, A678/B706, A688/B716, A697/B725.

Yet passages as the one quoted above that are prevalent in the *Appendix* suggest that the notion of an intelligent designer plays such a hypothetical role. Additionally, there is another textual counter-evidence for my argument against the role of purposive design. Kant's account of doctrinal belief in God in the *Doctrine of Method* seems to argue for the justified assumption of purposive design. A closer look, however, shows that Kant's position is more nuanced and does not commit him to equate the regulative role of the idea of God with the hypothesis of an intelligent designer.

When discussing justifications for belief, Kant argues that a hypothesis is justified if assuming it is required to achieve a practical end (A823/B851)¹⁷. Regarding belief in an intelligent designer, Kant claims that the assumption of purposive design is necessary to achieve the ends of reason in the investigation of nature:

I know no other condition for this unity that could serve me as a clue for the investigation of nature except insofar as I presuppose that a highest intelligence has arranged everything in accordance with the wisest ends. Consequently, the presupposition of a wise author of the world is a condition of an aim which is, to be sure, contingent but yet not inconsiderable, namely that of having a guide for the investigation of nature (A826/B854)

Yet we should notice that this assumption is not a hypothesis in the full sense. A hypothesis is a proposition with determinate empirical content that we take to obtain, or in other words, it presupposes a determinate concept of which we assume that there exists an object substantiating its properties. Therefore, Treating the idea of God in the same way would mean conceiving a determinate causal relation between God and the order of the world. But being an idea of reason, i.e., a representation that cannot be exhibited in possible experience, we cannot form a determinate belief about the way God causes the purposiveness in nature.

¹⁷ See Chignell 2007 for a full account of Kant's different notions of belief.

For this reason, Kant describes the mode of belief in God for theoretical purposes (‘doctrinal belief’) only as an *analog* of a hypothetical (pragmatic) belief, meaning that it bears a structural similarity to a hypothesis but is not actually one. The similarity is in the practical guidance and the subjective attitude it allows towards the inquiry of nature, but not in the attitude towards the propositional content of the belief:

The word ‘belief,’ however, concerns only the **direction** that an idea gives me and the **subjective influence** on the advancement of my actions of reason that holds me fast to it, even though I am not in a position to give an account of it from a speculative point of view (ibid emphasis mine)

From this analogical characterization of ‘doctrinal belief’, we can conclude that purposive design is only a heuristic image usable in the investigation of particular sorts of cases, but not what explains the conceptual relation between the idea of God and the systematicity of nature. In the terminology of the *Appendix*, purposive design serves as a heuristic device for the principle of systematic unity in its logical/subjective guise, but does not express its transcendental sense, i.e., as pertaining to nature itself. Thus it is plausible to understand the notion of purposiveness in the *Appendix* as the way human thought can make the unity of the laws of nature palpable when looking for concepts applicable to nature¹⁸.

In addition to the problematic hypothetical status of purposive design, there is a conceptual problem regarding its role in natural science. This problem is also related to Kant’s refutation of physico-theology. An intelligent designer provides an explanation only of the contingent yet

¹⁸ In the introductions to the *Critique of the Power of Judgment* (CJ), the purposiveness of nature is designated explicitly as purposiveness for *our* cognition and is a transcendental principle for the power of reflective judgment. Pasternack argues that this principle obviates the need for the idea of God in CJ (Pasternack 2010). I disagree. The aim of the introductions of CJ is more extensive than that of the *Appendix*: not only to argue for a regulative principle for the discovery of empirical laws, but also to establish a transcendental principle constitutive of the domains of aesthetic judgments and organic nature. But the idea of God as reason’s expression of the ground of the unity of nature is not thereby made obsolete. This is evident from the role the intuitive intellect plays in CJ: for the sake of expressing the possibility of harmony between mechanism and teleology and the systematic unity of nature as a whole it is permissible to conceive a supersensible ground as an intuitive intellect (CJ 5: 409). The intuitive intellect is a substantive metaphysical concept of God which I would argue is compatible with the one I present here. But discussing the relation between the *Appendix* and CJ is beyond the scope of this paper.

seemingly purposive regularities in nature, but not of the subject matter of natural science, explanation according to *necessary* laws of nature and the essential properties and powers of natural kinds:

The regulative principle demands that systematic unity be presupposed absolutely as a unity of nature ... as following from the **essence** of things. But if I antecedently make a highest ordering being the ground, then the unity of nature will in fact be done away with. For then this unity is entirely foreign and contingent in relation to the **nature of things**, and it cannot be cognized from the **universal laws** thereof (A693/B721 emphasis mine)

Thus the problem with the physico-theological argument is not epistemic but conceptual: any evidence of purposiveness is not related to the desired conception in the conclusion, a God who is the ground of everything, including the *necessary* laws of nature. As I will show below, the same concern about the relation between God and the necessary laws of nature was important for Kant also in his pre-critical discussion of physico-theology. To show that, I will first present Kant's construal of the Ideal of Reason (the *ens realissimum*) and its continuity with the pre-critical conception of God.

3. The Ideal of Reason and the Ground of Possibility

The conception of God is construed in the *Ideal* in the following way. Reason assumes for the possibility of conceptual cognitions of things in general the principle of thoroughgoing determination (A571-2/B599-600). To put it simply, this principle prescribes what it is like to know everything there is to know about something, such that this knowledge would suffice for comprehending it as an individual object solely through its concept (A573/B601). The principle states that a complete determination of a thing's concept requires that one of each pair of **all** possible opposite predicates applies to the object. Assuming that objects are conceptually

determinable and according to the identity of indiscernibles, objects with the same set of predicates are identical. Hence the complete set of predicates uniquely identifies an individual object.

The concept of God as the ideal of reason is formed from the premise that determining the complete set of predicates presupposes a totality of all possible predicates (A575/B603). The sum total of all predicates is also the whole of reality when considering positive predicates as signifying a reality, and negative predicates as lack of reality. Each concept of an individual thing is determined by selecting a subset from this whole. Conceiving the whole of reality as a single object leads to the notion of the most real being (*ens realissimum*), the conception of God in rational theology as the being possessing all possible perfections.

How does this very abstract conception relate to the systematicity of nature? Structurally, just as the logical notion of a system as a whole determining its parts and derivable for a single principle, the *ens realissimum* is the ground for the whole of reality which is the condition for the individuation of its parts¹⁹. But regarding its relation to nature, I suggest that the role of God is better clarified by noting its continuity with Kant's pre-critical proof for the existence of God.

The sum-total of all realities that is presupposed by the conceptual individuation, i.e., the thoroughgoing determination of all things, is also labeled as 'the material of all possibility' (A573/B601)²⁰. This notion is a clear allusion to Kant's pre-critical proof for the existence of God²¹. The proof was first presented in the *New Elucidation* of 1755²². Its most elaborate presentation is in the 1763 essay 'The only possible argument in support of a demonstration of the

¹⁹ Zuckert 2017:105 briefly suggests this connection between the idea of God and systematicity, but does not mention the necessity of the laws of nature which relate specifically to the content of the idea.

²⁰ Also: 'the entire storehouse of material from which all possible predicates of things can be taken' (A576/B604).

²¹ It is widely accepted that the Ideal is closely related to the pre-critical possibility proof, for example Wood 1978, Fisher and Watkins 1998. My interpretation of the regulative role provides a further defense for the importance of this relation.

²² NE 1:395.

existence of God'²³. The gist of the argument in all these texts goes like this: the possibility of any individual thing presupposes not only the non-contradiction of its predicates (the logical ground), but also that their content is given through some existing thing (the material ground). If nothing exists, nothing can be given for thought, and therefore nothing is possible. Thus something exists necessarily. Kant continues to argue (somewhat controversially) that there exists one necessary being grounding all possibilities - God²⁴. The affinity between this argument and the construal of the ideal of reason in the *Critique* is evident, textually and conceptually: the same 'all of reality' required for thoroughgoing determination of things is also the material ground of their possibility in the pre-critical sense, the ground of the content of predicates²⁵. Additionally, Kant continues to mention the possibility proof favorably in his lectures on rational theology²⁶.

What is important for the present purposes, is that Kant explicitly argues that the metaphysical conception of God as the ground of possibility is conducive to the proper method of natural science. Thus it anticipates the regulative role of the idea in the *Appendix*. The systematic order of nature is discussed at length in the second part of the essay (OPA 2:93-155)²⁷. Kant criticizes in this section physico-theological explanations that attribute the purposiveness of nature to the divine will. This method of physico-theology finds evidence for divine wisdom and benevolence in seemingly purposeful objects and events in nature. It regards these as contingent,

²³ Henceforth OPA.

²⁴ The argument is problematic in various ways as pointed by many commentators, for example Fisher and Watkins 1998, Chignell 2009, Stang 2010 and Boehm 2012. The various problems of the argument are unrelated to my present purposes, the content of the conception of God entailed by the proof and its relation to the *Ideal* and the regulative principle of the systematicity of nature.

²⁵ Also in the lectures: 'the *ens realissimum* contains the ground of the possibility of all other things when I limit it so that negations arise' (LPR 28:1005).

²⁶ 'Here it was shown that of all possible proofs, the one which affords us the most satisfaction is the argument that if we remove an original being, we at the same time remove the substratum of the possibility of all things' (LPR 28:1034).

²⁷ Most of the literature on OPA does not discuss this section at all, as its content seems more related to Kant's pre-critical scientific theories. An exception is Schönfeld 2000: ch. 9.

inexplicable by the necessary laws of nature and hence possible only through a deliberate act of God. Kant concedes that products of organic nature display such purposeful design that the thought that they could be a product of necessary laws of nature without deliberate intervention is almost inconceivable²⁸. Yet some thinkers apply such explanations also when natural causes can be sought. For example, they explain the existence of rivers and mountains as being deliberately and specifically created for the sake of their utility to people (OPA 2:120).

This method of physico-theology is problematic for several reasons. Theologically, it makes any advance in natural science detrimental to the strength of the proof as it diminishes the role played by divine intervention (OPA 2:118). Conversely, it can hinder scientific research when a supernatural explanation is preferred over a possible natural one (OPA 2:119). Finally, even when an assumption of divine intention is plausible, the inference supports at most an inferior conception of God, according to which

God is strictly regarded as the Architect of the world, not as its Creator: He orders and forms matter, but He does not produce or create it (OPA 2:123).

According to this type of physico-theology, God's actions are manifested by the design and construction of purposive combinations of matter that is conceptually independent of God. As we have seen in section 2, Kant makes the same claim in the refutation of the physico-theological proof and in the *Appendix*.

Instead of appealing to the divine will as an explanation of contingent design, the correct way to think about the purposive order of nature is as a result of the necessary laws stemming from the essences of things and discoverable by the natural sciences. But this does not mean that God is excluded from the resulting scientific picture. Kant distinguishes between what is grounded in

²⁸ OPA 2:107, 2:115, 2:118, 2:125.

God morally, i.e., through God's will, and what is grounded non-morally, i.e., as a consequence of God's essence (OPA 2:100). What is grounded in God's will is the contingent existence and arrangement of things, while what is grounded by God non-morally is their possibility. Since the possibility of things is their essence²⁹, the ground of possibility is the ground of essences, which means the ground of the necessary properties of things and the lawful relations between them³⁰. Since the unity found among the *essences* is explainable by being grounded in God, investigating the unity of the laws of nature provides further evidence for the cogency of the conception of God as the single ground of possibility:

Our purpose from now on will be to see whether the internal possibility of things is itself necessarily related to order and harmony ... so that, on this basis, we could establish whether the essences of things themselves indicate an ultimate common ground. (OPA 2:92)

In the second section of OPA Kant proceeds to exemplify the unity of essences through the properties of space and the laws of motion as evidence for the existence of God (OPA 2:93-100). Kant espoused this view about God as the ground of essences and the laws of nature already in his drafts on optimism³¹ and the 1755 essay *Universal Natural History*³², and kept holding it also in the lectures³³. It is also hinted in the *Appendix*:

The regulative principle demands that systematic unity be presupposed absolutely as a **unity of nature** ... as following from the **essence** of things (A693/B721)

As shown above, the critical Kant continues to endorse the same content for the conception of God in the *Ideal*. Because this conception accords with the aims of science, I argue that the relation between the construal of the idea of God in the *Ideal* and its use in the *Appendix* mirrors the relation between the first and the second sections of OPA. While in OPA the relation of the conception of

²⁹ Throughout OPA Kant uses the term 'inner possibility' which is equated with essence (NE 1:395). This is also Baumgarten's term for essence (*Metaphysica* §40, Baumgarten 2013, p. 108).

³⁰ More about Kant's essentialism in the pre-critical writings see Insole 2011.

³¹ R3704 17:234.

³² 1:222-3, 1:332.

³³ LPR 28:1035.

God as the ground of possibility to the lawfulness of nature is a positive metaphysical theory, in the *Critique* it is only an expression of the regulative demands of reason without a commitment to its objective existence. But the point I make is about the content of the God-systematicity relation and not its epistemological status. In this respect, in contrast with a mere methodological principle of systematic unity or a hypothesis of an intelligent designer, the pre-critical discussion of God as the ground of essences can illuminate why the idea of God is the regulative idea of the lawfulness of nature.

4. God and the Particular Laws of Nature

In comparison with Kant's pre-critical philosophy, however, there is an important complication regarding the necessity of the laws of nature that explains the merely regulative role of the idea of God. Part of Kant's motivation for the critical turn and the formulation of transcendental idealism is the explanation of a priori knowledge about objects of experience. For Kant propositions that are cognized a priori are thought as necessary and strictly universal (B3-4). Hence the possibility of a priori knowledge about objects of experience means that there are some necessary and universal truths about things in nature. But our a priori knowledge is limited, and most of our knowledge of nature is a posteriori, including laws of nature discovered empirically in the historical development of science. Thus the cognitions of these laws is not accompanied by cognition of their necessity. The status of empirical laws of nature is a contested issue in the literature which I will not attempt to settle. I will follow here one prominent account labeled by Kreines as the necessitation account of the laws of nature³⁴. According to this account, Kant's concept of a law of nature entails a necessity which is grounded in the essences of things but does

³⁴ Kreines 2009. Defended also in Watkins 2005: 243-265, Massimi 2014, Messina 2017.

not entail that this necessity is knowable. Following this account, I will show, that for Kant conceptualizing the assumed necessity of laws of nature requires recourse to the same pre-critical notion of the ground of all essences.

It is clear from the examples given in the *Appendix* that Kant regards the regulative use of reason to pertain to empirical concepts and laws of natural science. The general goal of reason is to form ‘a system interconnected in accordance with necessary laws’ (A645/B673). Kant then continues to give examples of how science posits ‘pure earth, pure water, pure air’ to unite various material phenomena according to laws governing the interaction between these ideal kinds (A646/B674). Likewise, when considering the causal powers of things, reason prescribes the task of uniting the various powers into more fundamental powers, ‘so that the systematic unity of a substance’s many powers are postulated’ (A650/B678). While the main concern here is the unification of different powers, the fact that they are regarded as grounded in the nature of kinds of substances (though ideal) already suggests a view about the ground of the necessity of the laws of nature.

In other places in the *Critique* Kant elaborates on the necessity assumed in laws of nature, and contends that causal laws are not mere generalizations of successions of events, but ideally should describe relations of necessitation between kinds of things involved in the events:

The concept of cause . . . requires that something A be of such a **kind** that something else B follows from it **necessarily** and in accordance with an absolutely universal rule . . . the effect does not merely come along with the cause, but is posited through it and follows from it. (A91/B124 emphasis mine)

The relation of necessitation means that if there is a law connecting instances of A’s with instances of B’s then it is a relation between *kinds* of things: there is something in the *nature* of the kind A

and the kind B that necessitates this relation³⁵. Since Kant talks about kinds of things, it is reasonable to infer that the view implied here is that the necessity of lawful relations is grounded in the nature or essence of things³⁶. This dependence of laws on essences is expounded explicitly in the *Metaphysical Foundations of Natural Science*³⁷. Kant defines there essence as ‘the first inner principle of all that belongs to the possibility of a thing’, while nature (in the formal meaning rather than as the totality of all things) as ‘the first inner principle of all that belongs to the existence of a thing’ (MFNS 4:468, 4:468n). In other words, nature is the essence (inner principle) of an existent thing. Since the properties derived from the ‘first inner principle’ belong necessarily to a thing, these could also be called laws:

[T]he word nature already carries with it the concept of **laws**, and the latter carries with it the concept of the **necessity** of all determinations of a thing belonging to its existence... (MFNS 4:468)
For laws, that is, principles of the **necessity** of that which belongs to the existence of a thing (MFNS 4:469 emphasis mine)

Thus the necessary laws of nature are those grounded in the essence of things (their nature). But how do we cognize essences and consequently the laws grounded in them? When discussing essences in the Logic lectures, Kant makes the important distinction between logical essences and real essences:

The complete basic concept of a thing is in general its essence. The first ground of everything that I think in the concept of the thing, however, is the logical essence. The first basic concept of everything that really and in fact belongs to the thing, however, is the real essence. (Blomberg Logic 24:116)³⁸

The logical essence is what is represented by us in our *concept* of a thing, and the real essence is what belongs to the thing itself. Since the real essence belongs to an object, i.e., something existing,

³⁵ Stang calls this type of necessity *nomic necessity*: something is nomically necessary iff it is grounded in the real essences of empirical natural kinds (Stang 2016: p. 229ff). My discussion here is based mainly on this chapter.

³⁶ Although this view is not as explicit in the *Appendix* as in other places, since it exists both in the quoted passage in the *Critique* and in texts before and after 1781, it is reasonable that it is presupposed also in the *Appendix*.

³⁷ Henceforth MFNS.

³⁸ Also in Vienna Logic 24:839, Dohna-Wundlacken Logic 24:728, Jäsche Logic 9:58, Metaphysik L2 28:553.

it is identical with what is called in MFNS ‘nature’³⁹. It is clear from these definitions that these two are not necessarily identical. We form concepts of things based on experience, i.e., we form a list of predicates (characteristic marks) according to which we identify things and distinguish them others. Among these, some predicates might be considered as necessary for subsuming the object under the concept, i.e., as belonging to the logical essences of the concept. But like all predicates, also these essential predicates are cognized from experience and are revisable according to it. Judging that our concepts of logical essences correspond to the real essences of things would require insight into the necessity of the predicates included in the essence. Since for Kant knowledge of necessity is a priori, knowledge of the real essences of things would have to be a priori rather than a posteriori. Thus there can be no knowledge of the real essences of objects of experience, of which there is no complete a priori knowledge:

To have insight into the real essence exceeds human understanding. We cannot provide a complete ground for a single thing. This requires a universal, complete experience, and to obtain all possible experience concerning an object is impossible; we cannot explain any thing in nature a priori and without any experience, because the understanding cannot speculate about that with which it is not acquainted (Vienna Logic 24:839-40)

If there can be no knowledge of real essences, there can also be no knowledge of the necessity of the laws of nature grounded in them.

One might object to this conclusion, referring to Kant’s argument in the *Second Analogy* about the law of causality by interpreting it in a particularly strong way. Some interpret the argument to establish not only the necessity of the principle that every event has *some* cause but also that of a stronger principle that the *same* cause entails the *same* effect, meaning that causal laws are governed by general *kinds* participating in the events⁴⁰. The text, however, is ambiguous

³⁹ ‘The real essence is also called the nature. If I distinguish essence and nature, then I distinguish the logical from the real essence’ (Vienna Logic 24:840).

⁴⁰ For example Guyer 1987: 252.

between the two principles, and some contend that the argument itself cannot support the stronger principle⁴¹. Yet even if there are reasons to think that Kant aimed at proving the stronger principle, it is clear that this necessity is only related to the abstract form of the principle of causality and does not entail that our empirical concepts track the real essences of natural kinds and the particular causal law of nature grounded in them⁴².

Our knowledge of natural kinds is empirical and hence cannot provide insight into the necessity of the laws governing them. In MFNS Kant aims to show that the necessity of the most general laws of nature is cognizable *a priori* by reference to the forms of sensibility and the pure concepts of the understanding when applied to the most general empirical concept of matter. This can be done because the concept of matter, though empirical, can be analyzed without reference to other concepts given by experience (MFNS 4:472)⁴³. But the examples of the *Appendix* imply that there are also particular laws of nature grounded in natural kinds that have to be discovered empirically, yet according to Kant's general notion of causal laws are still supposed to express real necessitation relations⁴⁴. The inexplicable necessity of particular empirical laws in contrast with the general transcendental ones is reiterated more explicitly in the introduction to the 3rd Critique (CJ 5:180,184). Kant states there that we assume the particular laws of nature discovered empirically to be necessary (following the very notion of a law of nature) although there can be no explanation why they are necessary⁴⁵.

⁴¹ For example Allison 2004: 256-8, Watkins 2005: 287.

⁴² See Watkins 2005: 290.

⁴³ This argument is expounded in Friedman's work, for example Friedman 2014.

⁴⁴ This is a central claim in Kreines 2009. It is further elaborated in Kreines 2017.

⁴⁵ In MFNS, Kant claimed that without *a priori* knowledge there can be no 'proper' natural science, only a descriptive or historical science (4:471). For this reason chemistry does not amount to proper science. There is a question whether Kant changed his mind about that in the *Critique of the Power of Judgment*, with the emphasis on the need to assume the unknown necessity of the particular laws of nature. See of example McNulty 2015 for such an account.

How should we conceive of this necessity of the particular laws of nature? Because empirical laws are not constitutive of objects of experience and because there can be no insight into the real essence of things, their necessity cannot be known *a priori*. Nevertheless, that does not mean that reason cannot presuppose this necessity as a regulative principle⁴⁶. Thus relative to this regulative demand, reason can conceive an idea as a metaphysical ground for this kind of necessity⁴⁷. The conception of God as the ground of possibility (and essences) inherited from the pre-critical writings thus expresses what is demanded by reason but cannot be derived from the *a priori* conditions of experience: nature as determined by a unified system of necessary laws grounded in the essences of natural kinds.

5. Conclusion - Regulative Metaphysics

What is the epistemic status of the conception of God as related to the systematicity of nature? Regarding the proof from the grounds of possibility, Kant states in the lectures that although it cannot establish the objective existence of God, it is still subjectively necessary to assume it as the only complete explanation of how the possibility of things could be grounded:

But even this proof is not apodictically certain; for it cannot establish the objective necessity of an original being, but establishes only the **subjective necessity of assuming such a being**... because otherwise I would be unable to know what in general the possibility of something consists in. (LPR 28:1034)

I suggest that in the *Appendix* the idea of God has the same status relative to the demand to explain the necessity and systematicity of the laws of nature. Kant repeatedly stresses that the regulative use of the idea of God does not provide knowledge about the existence or the nature of its object.

⁴⁶ I agree here with Stang 2011 that Kant allows for necessities that cannot be cognized *a priori*.

⁴⁷ I suggest that since the idea of God is an idea of a noumenal object, the necessity of the laws of nature (Stang's *Nomic necessity*) grounded by it would be a form of what Stang calls *Noumenal necessity* (Stang 2016, p. 221ff). Stang relates *Noumenal necessity* to the grounding of phenomena on noumena in general. Here I extend it, though merely regulatively and non-casually, to the relation between God and the particular laws of nature.

Thus it does not provide an explanation in the full epistemic sense. Yet it is justified to represent it as an explanatory ground relative to the regulative principles of reason. Although it seems like a representation of an existing object, it should be considered only ‘a schema of the regulative principle for the systematic unity of all cognitions of nature’ (A674/B702)⁴⁸. Kant makes this claim about all three ideas of reason, but as I argued in section 1, regarding the unity of nature, the idea of God has a more significant role. Indeed, the next paragraphs deal mostly with this idea. Nevertheless, my account about the relation between the idea of God and its regulative use could also be applied to the ideas the soul and the world relative to their different content (discussing the other ideas is beyond the scope of this paper).

The idea of God is thus a ‘schema’ representing the desiderata of empirical concepts, namely that they track real essences that ground necessary laws and are systematically interconnected. Another image employed by Kant for the schematic use of the idea is that of a ‘focus imaginarius’ (A644/B672). This is a concept of a supersensible object (hence the metaphor of an imaginary point) posited to express the demand of reason to ground the systematic unity of empirical concepts and the necessity of the laws of nature stemming from them, though it itself and the kind of grounding it enables are not possible objects of knowledge, neither empirical, nor *a priori*.

I suggest that we can label this regulative use of the ideas of reason as *regulative metaphysics*. It is metaphysical because it deals with *a priori* concepts such as the ground of possibility and essences, but it is merely regulative because it does not involve a hypothesis about the existence of some object. This metaphysical theory is meaningful not because of its objective reference, but in virtue of expressing how we *ought* to think about some subject matter according

⁴⁸ See also A682/B710.

to rational norms of inquiry and explanation⁴⁹. Thus relative to the norms of explaining things according to necessary laws of nature, and the rationality of trying to unite these laws in a system, it is justified to conceive a single ground in virtue of which these laws are necessary and unified. In other words, to assume that science can progress to form empirical concepts that express mind-independent necessities and are systematically interrelated means for Kant to represent God as the ground of all essences. Hence the *Dialectic* culminates not in the simple rejection of rationalist metaphysics, but in its transformation into regulative metaphysics. The regulative role of the theoretical idea of God in the *Appendix* provides the clearest example of this regulative metaphysics. Rather than discarding the rationalistic conception of God as dogmatic nonsense, the *Appendix* shows how it can be appropriated to receive a new regulative meaning.

References

- Allison, Henry E. (2004) *Kant's transcendental idealism*. New Haven: Yale University Press.
- Baumgarten, Alexander (2013) *Metaphysics: A Critical Translation with Kant's Elucidations, Selected Notes, and Related Materials*. trans. Courtney D. Fugate and John Hymers. New York: Bloomsbury Publishing.
- Boehm, Omri (2012) 'Kant's Regulative Spinozism'. *Kant-Studien*, 103/3, 292-317.
- Briesen, Jochen (2013) 'Is Kant (W)right? – On Kant's Regulative Ideas and Wright's Entitlements'. *Kant-Yearbook*, 5/1, 1-32.
- Chignell, Andrew (2007) 'Belief in Kant'. *Philosophical Review*, 116/3, 323-360.
- (2009) 'Kant, Modality, and the Most Real Being'. *Archiv für Geschichte der Philosophie*, 91/2, 157–92.
- Fisher, Mark, and Watkins, Eric (1998) 'Kant on the Material Ground of Possibility: From "The Only Possible Argument" to the "Critique of Pure Reason"'. *Review of Metaphysics*, 52/2, 369 - 395.
- Friedman, Michael (2014) 'Laws of Nature and Causal Necessity'. *Kant-Studien*, 105/4, 531-553.
- Geiger, Ido (2003) 'Is the Assumption of a Systematic Whole of Empirical Concepts a Necessary Condition of Knowledge?'. *Kant-Studien: Philosophische Zeitschrift der Kant-Gesellschaft*, 94/3, 273 - 298.

⁴⁹ Massimi 2017 distinguishes between two ways of understanding the role of the ideas of reason in the *Appendix*, as archetypes or as rules, and argues for the latter interpretation. While there is much to learn from this distinction, she does not explain precisely how the idea of God functions as a rule. In contrast, my account of regulative metaphysics shows how the archetype (the metaphysical content) as indispensable for its regulative role.

- Grier, Michelle (2001) *Kant's doctrine of transcendental illusion*. Cambridge: Cambridge University Press.
- Guyer, Paul (1987) *Kant and the Claims of Knowledge*: Cambridge University Press.
- Insole, Christopher (2011) 'Intellectualism, relational properties and the divine mind in Kant's pre-critical philosophy'. *Kantian Review*, 16/3, 399-427.
- Kant, Immanuel (1992) *Lectures on logic*. Edited by J. Michael Young. Cambridge ;: Cambridge University Press.
- (1998) *Critique of Pure Reason*. trans. Paul Guyer and Allen W. Wood. Cambridge: Cambridge University Press.
- (2000) *Critique of the Power of Judgment*. trans. P. Guyer and E. Matthews. Cambridge: Cambridge University Press.
- (2001) *Religion and Rational Theology*. trans. A.W. Wood and G. di Giovanni. Cambridge: Cambridge University Press.
- (2003) *Theoretical philosophy, 1755-1770*. trans. David Walford and Ralf Meerbote. Cambridge: Cambridge University Press.
- Kraus, Katharina T. (2018) 'The soul as the 'guiding idea' of psychology: Kant on scientific psychology, systematicity, and the idea of the soul'. *Studies in History and Philosophy of Science Part A*.
- Kreines, James (2009) 'Kant on the laws of nature: Laws, necessitation, and the limitation of our knowledge'. *European Journal of Philosophy*, 17/4, 527-558.
- (2017) 'Kant on the Laws of Nature: Restrictive Inflationism and Its Philosophical Advantages'. *The Monist*, 100/3, 326-341.
- Longuenesse, Beatrice (2005) *Kant on the Human Standpoint*. Cambridge: Cambridge University Press.
- Massimi, Michela (2014) 'Prescribing laws to nature. Part I. Newton, the pre-Critical Kant, and three problems about the lawfulness of nature'. *Kant-Studien*, 105/4, 491-508.
- (2017) 'What is this Thing Called 'Scientific Knowledge'? – Kant on Imaginary Standpoints And the Regulative Role of Reason'. *Kant Yearbook*, 9/1, 63-84.
- McLaughlin, Peter (2014) 'Transcendental Presuppositions and Ideas of Reason'. *Kant-Studien*, 105/4, 554-572.
- McNulty, Michael Bennett (2015) 'Rehabilitating the regulative use of reason: Kant on empirical and chemical laws'. *Studies in History and Philosophy of Science Part A*, 54/, 1-10.
- Messina, James. 2017. 'Kant's Necessitation Account of Laws and the Nature of Natures.' In *Kant and the Laws of Nature*, edited by Angela Breitenbach and Michela Massimi, 131-149. Cambridge: Cambridge University Press.
- Pasternack, Lawrence. 2010. 'Kant's Doctrinal Belief in God.' In *Rethinking Kant*, Vol. 3, edited by Oliver Thorndike.
- Pickering, Mark (2011) 'The Systematic Unity of Nature as a Transcendental Illusion'. *Kantian Review*, 16/3, 429-448.
- Rauscher, Frederick. 2010. 'The appendix to the dialectic and the canon of pure reason: the positive role of reason.' In *The Cambridge Companion to Kant's Critique of Pure Reason*, edited by Paul Guyer. Cambridge University Press.
- Schönfeld, Martin (2000) *The Philosophy of the Young Kant: The Precritical Project*. Oxford: Oxford University Press.
- Smith, Norman Kemp (1923) *A Commentary to Kant's Critique of Pure Reason*. London: Macmillan.

- Stang, Nicholas F. (2010) 'Kant's Possibility Proof'. *History of Philosophy Quarterly*, 27/3, 275-299.
- (2011) 'Did Kant Conflate the Necessary and the A Priori?'. *Noûs*, 45/3, 443-471.
- (2016) *Kant's Modal Metaphysics*. Oxford: Oxford University Press.
- Watkins, Eric (2005) *Kant and the Metaphysics of Causality*. Cambridge: Cambridge University Press.
- Wood, Allen W. (1978) *Kant's rational theology*. Ithaca, N.Y.: Cornell University Press.
- Zuckert, Rachel. 2017. 'Empirical Scientific Investigation and the Ideas of Reason.' In *Kant and the Laws of Nature*, edited by Angela Breitenbach and Michela Massimi, 89-107. Cambridge: Cambridge University Press.