

The Needs of Understanding: Kant on Empirical Laws and Regulative Ideals

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Abstract

This article examines the relationship in Kant between transcendental laws and empirical laws (focusing on causal laws), and then brings a particular interpretation of that issue to bear on familiar puzzles concerning the status of the regulative maxims of reason and reflective judgment. It is argued that the 'indeterminate objective validity' possessed by the regulative maxims derives ultimately from strictly constitutive demands of understanding.

Keywords: Kant; understanding; reason; empirical laws; regulative maxims; causality.

There are two central and enduring perplexities concerning Kant's theoretical philosophy that I suggest can be mutually clarified by bringing a particular interpretation of one to bear on the other. The first perplexity concerns how we ought to understand the relationship between the pure *transcendental* laws of understanding based on the categories on the one hand, and the various *empirical* laws derived a posteriori from sense experience that are supposed to 'conform to' those a priori laws on the other. In the secondary literature¹ this issue has usefully been framed in relation to the following question: Does Kant's famous 'response to Hume' in the argument of the Second Analogy itself directly entail that (if experience is to be possible)² there must be empirical laws in nature, involving necessary connections between distinct empirical kinds of event (i.e., same cause, same effect)? Or does it demonstrate only the general principle that for every event there must be *some* cause or other, without itself warranting our belief in the existence of particular empirical causal laws in nature? The former ('strong') reading captures Kant's intention of disarming Hume's scepticism concerning necessary connections in nature, but this interpretation has been alleged to embody a 'non sequitur of numbing grossness'.³ The latter ('weak') reading avoids the supposed non sequitur, but arguably at the cost of robbing the Second Analogy

of its intended force. Commentators remain sharply divided on this fundamental issue.

The second perplexity concerns the epistemic status of Kant's regulative maxims of reason (in the First *Critique*) or reflective judgment (in the Third *Critique*).⁴ Consider Kant's version of Ockham's Razor, that is, the regulative principle that '*principles must not be unnecessarily multiplied*' (A652/B680 and *CJ* 182).⁵ Kant holds that this maxim 'declares that *things by their very nature* supply material for the unity of reason . . .' (A652/B680, italics added; cf. *CJ* 182), and he repeatedly asserts that such principles – though based on ideas of reason that outstrip the bounds of sense experience – are '*objectively valid and necessary*' transcendental principles (A651/B679; italics added; sections III–V below). In this respect, like the categories, the regulative maxims relating to nature's 'complete systematic unity' are claimed by Kant to be synthetic a priori principles that are necessary for the very possibility of experience. On the other hand, Kant insists just as strongly that the very same regulative principles are not 'based on objective grounds, but solely on the interest of reason' (A667/B695), that is, on reason's natural but illusion-engendering demand for an unconditionally complete explanation of all conditioned experiences. They are *merely subjective* maxims, heuristic '*als ob*' principles serving as indispensable methodological guides for the understanding: 'such a principle does not prescribe any law for objects . . .; we may not, therefore, ascribe to the maxim *any objective validity*' (A306/B362–3; italics added; cf. *CJ* 184). As to how to resolve this seeming contradiction commentators also remain divided, some understandably resorting to the conclusion that in the end Kant's texts themselves are simply inconsistent.⁶

While perhaps not apparent at first sight, there is a tight connection between these two issues.⁷ In particular, I will argue that a proper understanding of the sense in which the argument of the Second Analogy is intended to validate the judgment that there exist particular empirical causal laws – that is, necessary connections among events⁸ characterized in terms of empirical kinds – will help us to understand the sense in which the regulative maxims of reason are *objectively valid*. For the Second Analogy, and the transcendental principles of understanding more generally, justify certain empirical existence claims that the understanding itself lacks the resources to determine legislatively (a priori). Such demands are consequently characterized as cognitive *needs* in the texts that treat of the regulative maxims. There we find that while the interest of reason in completeness indeed issues in a regulative ideal of systematicity that transcends the limits of experience (and hence in *that* respect has no objective validity), nonetheless reason's maxims are necessary for the possibility of satisfying the empirical *needs of understanding* (*Verstandesbedürfnis*). I contend that the latter are consequently the source of the a priori 'objective but indeterminate validity' that is possessed by those

regulative principles (A663/B691). I will argue that this complex interplay between the interests of reason and the needs of understanding, as well as this crucial but relatively neglected notion of an a priori indeterminate objective validity, provide the resources for an internally consistent reading of Kant's account of the regulative maxims in the *Critique of Pure Reason*. I will also briefly suggest (what is also controversial) that this account maps surprisingly well onto Kant's characterization of the crucial regulative principle of the *purposiveness* of nature in the *Critique of Judgment*. I begin with the first perplexity.

I

'However exaggerated and absurd it may sound,' writes Kant, summing up the first edition transcendental deduction in the First *Critique*, '... the understanding is itself the source of the laws of nature' (A127; similarly in the B-Deduction, B163–5). In both editions, however, there immediately follow some important qualifications. It is true that the understanding prescribes laws a priori to nature, but to nature 'considered merely as nature in general' (B165): only with regard to the 'formal unity' of nature (A127) do the categories serve 'as the original ground of its necessary conformity to law' (B165). 'Certainly,' Kant stresses, '*empirical* laws, as such, can never derive their origin from pure understanding' (A127, italics added). We then find a brief characterization of how the transcendental laws of understanding and empirical laws stand in relation to one another:

Special [*besondere*, i.e. particular] laws, as concerning those appearances which are empirically determined, cannot in their special character be *derived* from the categories, although they are one and all subject to them. To obtain any knowledge whatsoever of these special laws, we must resort to experience ... (B165; cf. A127–8)

Let us take the transcendental principle proved in the Second Analogy as our specimen a priori law of understanding. Kant there demonstrates the '*Principle of Succession in Time, in accordance with the Law of Causality*: All alterations take place in conformity with the law of the connection of cause and effect' (B232); or as in the first edition heading: 'Everything that happens, that is, begins to be, presupposes something upon which it follows according to a rule' (A189). How does this transcendental law (roughly), that every alteration must have some determining cause, stand in relation to such empirical laws as that *copper conducts electricity*, or (to take a recurrent example of Kant's) that *sunlight causes bodies to warm*?

Kant took Hume to have demonstrated that the necessity involved in the cause–effect relation cannot be accounted for by means of either a

priori demonstrative reasoning or a posteriori sense experience. Kant's strategy in the Second Analogy is to attempt an a priori justification of the *general* causal principle rather than of particular judgments concerning particular empirical causal connections. The conclusion of the argument is that there must be *something* in that which precedes any given event upon which that event follows according to a necessary rule. In brief, and without attempting a full examination of the argument here, the contention is that the applicability in experience of a certain basic temporal distinction – one so basic that it is arguably presupposed even by the sceptic – already presupposes that the general causal principle is objectively valid. For the latter (the argument attempts to establish) is necessary for the possible experience of *any* objective temporal succession (any *happening*) in the first place. For present purposes, let us assume that Kant has successfully demonstrated, as an a priori law of understanding, that every alteration must have some determining cause or other, this being a condition necessary for the possible experience of any objective temporal succession at all; and let us call this the *general causal principle*.⁹

Establishing the general causal principle in the Second Analogy allows Kant to offer a diagnosis later in the First *Critique* of the error that was involved in Hume's scepticism concerning causal necessity:

If, therefore, wax, which was formerly hard, melts, I can know *a priori* that *something* must have preceded (for instance, the heat of the sun), upon which the melting has followed according to a fixed law, although *a priori*, independently of experience, I could not determine, *in any specific manner*, either the cause from the effect, or the effect from the cause. Hume was therefore in error in inferring from the contingency of our determination *in accordance with the law* the contingency of the *law* itself. (A766/B794)

The empirical judgment that the heat of the sun caused the melting of the wax is here characterized as contingent in contrast to the necessity of the a priori judgment that *something* caused the wax to melt. Among other reasons, this has led some to conclude that Kant's argument for the general causal principle in the Second Analogy does not itself (and is not intended to) justify any judgment concerning the existence in nature of particular necessary connections based on empirical causal laws. Since Kant clearly did regard empirical connections as in some sense involving necessity, the idea would be that this is not strictly justified by the argument of the Second Analogy per se but is rather due, for example, to the guiding role of the regulative maxims of reason.¹⁰ In particular, Gerd Buchdahl's influential elaboration of this outlook in his *Metaphysics and the Philosophy of Science* has recently been defended again by Henry Allison, who sums up Buchdahl's view as follows:

... his central thesis [is] that the necessity of particular causal laws is *entirely* a function of their place in a systematic structure of such laws, while this structure, in turn, is seen as a regulative demand of reflective judgment rather than a constitutive requirement of the understanding.¹¹

This interpretation is mistaken, it seems to me, and seeing exactly how it is mistaken will form an important part of my resolution of the perplexity concerning the status of the regulative maxims of reason and reflection (sections III–V). What I want to suggest now is that the argument for the general causal principle in the Second Analogy *is* intended to establish directly that (if experience of objective temporal succession is to be possible) there must for every alteration be some particular causal law which subsumes that alteration; that is, there must be some empirical causal law according to which one empirical kind of event necessarily (and so uniformly) produces the subsequent empirical kind of event.¹²

One way to begin to tease out this alternative interpretation is to consider why it would be misleading to say that on Kant's general view we have experience of rocks, trees, or (more comprehensively) the matter of physics – *and substance*. Or that we have experience of pushes, burnings, or (more comprehensively) forces of gravity – *and causality*. It would be misleading because the transcendental principles concerning substance and causality are, to put it one way, *second-order* conceptual rules: they tell us that there *must be* certain first-order conceptual rules constraining our experience. To view the world as Thales viewed it, for example, is to conceive all possible changes as alterations *of water* – that is, *of permanent substance*. Put in Kant's terms, the empirical concept of *water* is here offered (mistakenly, as it turns out) as the proper empirical realization of the a priori requirement of permanent substance. Kant himself thinks that he can specify a priori, not just the transcendental categorial requirements themselves, but also their *unique and most generic first-order empirical realization*: it is not water, of course, but (roughly) a Newtonian framework of matter, motion, and force that provides the necessary instantiation, at the most general empirical level, of the a priori requirements set by the categories of understanding.

I eventually want to argue that the strict entailment here – from second-order formal requirement to first-order empirical realization – also holds in relation to such ordinary empirical matters as the 'fixed law' by which, we suppose, *the heat of the sun* (other things being equal) *melts wax*.¹³ It is empirical judgments *of this kind* (whether they are in fact correct or incorrect) that are also ultimately warranted by the argument of the Second Analogy itself, I will suggest. But we need to bear in mind that the way in which the formal a priori requirements are satisfied in the case of physics is importantly different from the way in which they are satisfied by

the sorts of empirical judgments put forward in both ordinary experience and in the various empirical sciences that have not (or not yet) achieved the status of mathematical physics. For in the case of the a priori 'metaphysics of physics' demonstrated in the *Metaphysische Anfangsgründe der Naturwissenschaften* (the *Metaphysical Foundations of Natural Science*),¹⁴ Kant intends there to be an a priori demonstrable subsumption directly from the pure transcendental laws of understanding to very general yet empirically contentful mechanistic laws of matter-in-motion – that is, once we add solely the empirical concept of 'matter as the *movable* in space' (e.g. *MFNS* 476–7).¹⁵ The resulting immanent metaphysics of the mechanism of nature thus concerns 'an empirical concept [which] is given[, but] in such a way that besides what lies in this concept, no other empirical principle is needed for cognizing things' (*MFNS*, *Ak.* 470). By contrast, as we shall see, in the case of the remaining varieties (and vast majority) of empirical judgments satisfaction of the a priori formal requirements of understanding will require the service of the regulative maxims of reason.

What needs to be explored now, however, is the sense in which the argument for the general causal principle of the Second Analogy is indeed intended to directly justify the claim that there exist in nature particular necessary connections among empirical kinds of events (i.e. causal laws). While an adequate analysis of the Second Analogy would require a separate paper on its own, I hope nonetheless to be able to persuade at least for the purposes of the wider aims here.

In the Second Analogy Kant argues that in order for the concept of a happening or an event (as opposed to that of a coexisting state of affairs) to have application within experience, we must judge that the *successive ordering* of the appearances in the case of an event was a necessary order. To rehearse Kant's famous example: whereas I could have perceived the coexisting sides of the house in a different order than I did in fact perceive them, if I judge that the ship's moving from upstream to downstream was something that *happened* I am judging that, for example, no matter what other subjective angle I had taken on the matter – that is, necessarily, counterfactually¹⁶ – my perceptions would still have been 'bound down' by the objective temporal ordering (the happening) in the appearances themselves ('necessitating us to connect them in some one specific manner', A197/B242–3).¹⁷ The point of the example is to support the transcendental/phenomenological point that the mere successive order of *apprehension* does not itself make possible the relevant *modal* claim (of irreversibility) that is required for the cognition of an objective event. Therefore to explain the possibility of that modal status nothing remains (cf. A197/B242) except for the concept of a necessary ordering or 'rule' governing *the phenomena themselves* (thus satisfying the general demand for objectivity that had been justified in the Transcendental Deduction):

... [I]n the perception of an event there is always a rule that makes the order in which the perceptions (in the apprehension of this appearance) follow upon one another a necessary order.

In this case, therefore, we must derive the *subjective succession* of apprehension from the *objective succession* of appearances. Otherwise the order of apprehension is entirely undetermined, and does not distinguish one appearance from another. (A193/B238)

There is still one more step to be recognized, however (precisely the step requiring the concept of genuine *causal laws*). For the question is *how* do we in general *represent* (i.e. in what sort of rule consists) the required a priori condition of an objective 'irreversibility' in the appearances? That is, what is the rule by which we constrain the appearances in order to effect the demanded representation that the temporal ordering of those appearances be *objectively necessary*? For Kant, temporal ordering itself is merely a relational structure of contents; time is not itself a content that is perceived. We must judge, therefore, that something in the preceding appearances is such as to *necessitate* (i.e. produce) the succeeding appearance:

... since absolute time is not an object of perception, this determination of position [i.e. objectively necessary succession] cannot be derived from the relation of appearances to *it*. On the contrary, *the appearances must determine for one another their position in time*, and make *their* time-order a *necessary* order. (A200/B245; italics added; cf. A195/B240)

What is it, for example, that makes possible my experience of the melting of the wax as an event? I must judge that something in the preceding appearances was such as to make it necessary ('according to a fixed law') that the melting of the wax followed. But the only available *candidates* for instantiating such a 'something' are, of course, various first-order empirical kinds of event. I judge, for instance, that it was the heat of the sun upon which the melting of the wax necessarily followed; and to say that it *necessarily* followed is to say that it *would* follow again (other things being equal). The assertion that there exists some appropriate empirical 'kind-kind' uniformity or causal law governing any given alteration is precisely how the required modal force or counterfactual weight must be represented in the appearances. What else could it be? Allison refers to 'the bare schema of causality' (*I&F*, p. 89), but in fact the schematism powerfully confirms the 'strong' reading offered here: 'the schema of cause ... is the real upon which, whenever posited, something else *always follows* [*jederzeit ... folgt*]' (A144/B183; italics added).

It should be noted that it is in terms of this understanding of empirical causal laws that Kant also makes the distinction between judgments of perception and judgments of experience in the *Prolegomena*. Kant's well-known example runs as follows:

... when the sun shines on the stone, it grows warm. This judgment, however often I and others may have perceived it, is a mere judgment of perception and contains no necessity; perceptions are only usually conjoined in this manner. But if I say: the sun *warms* the stone, I add to the perception a concept of the understanding, viz., that of cause, which necessarily connects with the concept of sunshine that of heat, and the synthetic judgment becomes of necessity universally valid, viz., objective, and is converted from a perception into experience. (*Prol.* 301n)

When I judge that the warming of the stone is an objective event (as opposed to judging that certain of my own perceptions have been regularly associated with one another; cf. B141–2), the objective validity of my judgment depends upon the idea that there was, among the preceding phenomena, some kind of empirical phenomenon (however complex; here specified simply as *sunlight*) upon which this event necessarily followed. And while in one respect any such statement is merely contingent since it contains an empirical concept, in another respect in making such judgments we are taking a shot at the truth about nature by asserting an objectively necessary empirical connection; and if Kant's argument in the Second Analogy is sound, we do so with a priori transcendental justification.

On the interpretation offered here it becomes fully intelligible why in Kant's formulations of the causal principle in the Second Analogy there are often *two* instances of 'rule' and two corresponding instances of 'necessity'. In the following passage this is clear (bracketed interpretations added):

In conformity with such a *rule* [= the transcendental causal principle] there *must* lie in that which precedes an event [= transcendental necessity] the condition of a *rule* [= a first-order rule] according to which this event *invariably and necessarily follows* [= an empirical causal law]. (A193/B238–9; all italics added)

Note also the clear imputation of genuine empirical uniformity across cases in 'invariably' (*jederzeit*; always), *contra* the 'weak' reading of the Second Analogy (see section II): whenever the prior 'condition' is present, this event-type must always follow (same cause, same effect; what else could follow 'always' but an event *type*?).

The Second Analogy, therefore, gives us a transcendental rule according to which *there must be* such first-order rules of necessitation (i.e.

empirical laws) constraining the appearances, whether or not in any given case any particular candidate is correct or is even actually specified. Part of the resistance to this interpretation is perhaps a mislocation of the *contingency* involved in ‘the contingency of our determination in accordance with the law’. The contingency here is not that the general causal principle of the Second Analogy leaves it an *open question* as to whether or not for any given event there exists some necessary (and therefore generalizable) empirical connection or other by means of which ‘the appearances determine for one another their position in time’ (same cause, same effect). The contingency here is also not that *empirical* connections cannot be *necessary* connections. Rather, the contingency derives from the fact that just what are the empirical connections that actually satisfy this a priori requirement is not something that can be legislated a priori, in advance of the appropriate experiences; and so there could have been other empirical laws than those (whatever they may be) that actually govern the appearances. In one important sense Kant thus holds quite generally that any synthetic judgment that contains an empirical concept is contingent: namely, in comparison to the a priori necessity of the categorical laws of pure understanding themselves. But this is quite consistent with his clear view that there can be – indeed, that there *must* be – necessary empirical connections in nature.

II

In contrast to the idea that the existence and necessity of particular causal laws is justified solely via the interests of reason in systematic unity (what Allison calls his ‘weak reading’ or Buchdahl’s ‘looseness of fit’ interpretation), the position I have been defending is that the objective validity of our various judgments asserting the existence of empirically necessary connections (as when we make such judgments as ‘x warms y’ or ‘x is heavy’, B142) is derived from the strict requirements of understanding.¹⁸ As I see it, the ‘looseness’ involved here is not a *justificatory* looseness concerning the relevant existential claim, but rather reflects our inability to cognise the relevant empirical laws a priori. The resulting contingency and associated fallibilism regarding our particular empirical causal judgments should not be taken to diminish the constitutive truth that any world of which we can have experience must be a world in which every apprehended event falls under some appropriate empirical causal law or other (discovered or undiscovered). Before putting this interpretation to work in addressing the second perplexity, in this section I would like to clarify the ‘strong’ reading of the Second Analogy by responding briefly to some of the objections that have been raised against it. I will focus on the recent objections put forward by Henry Allison.¹⁹

In characteristically straightforward terms (though mistaken in this case, I think), Allison offers the following objections to the strong reading. (The reader ought to consult *KTI* and *I&F* for the full objections.)

- 1 The strong reading implausibly reads the Second Analogy as attempting to ‘guarantee particular generalizations or laws’ by demonstrating a principle of induction (*KTI*, pp. 228–9).
- 2 The strong reading would commit Kant to the non sequitur of which he has been accused.
- 3 The strong reading implausibly requires that every perceived succession be a *lawlike* succession, ruling out the possibility of ‘contingent happenings’ (*KTI*, pp. 230).
- 4 Against the strong reading, neither the concept of causality nor the Second Analogy strictly entail the existence of *causal laws*, for the latter but not the former require repeatability, regularity, uniformity (*I&F*, pp. 85–6).
- 5 The strong reading entails implausibly that we must make explicit appeal to causal laws in order to cognise any objective successions (*ibid.*).
- 6 The strong reading commits Kant to a vicious circularity in that (a) we require empirical laws in order to experience events, but (b) such laws are themselves based on the experience of regular sequences of events (*I&F*, p. 89).

I do not find any of these objections persuasive, for the following reasons.

- 1 The strong reading does not interpret the Second Analogy as attempting to ‘guarantee particular generalizations or laws’. In accordance with the Second Analogy we must judge that any given alteration such as the *warming of this body* is indeed an instance of some counterfactual-sustaining empirical law or other, and the proposed candidate here (namely, that sunlight is such as to warm bodies) is certainly of the appropriate type. The laws of understanding of course entail nothing a priori concerning empirical predicates generally; in fact, our coming up with suitable empirical judgments and further assessing them is precisely where the regulative maxims of reason and reflective judgment play a necessary role (sections III–V below). It *is* true, however, that the understanding demands that the required empirical causal law, *whatever it may be*, supports relevant counterfactuals; so that *if* our candidate causal law is indeed the correct one, then let the sun shine on a body, and (*ceteris paribus*) it will grow warm.

Concerning *induction*, that is a matter of evaluating the degree of confidence we ought to place in a given hypothesis, and this according to Kant (as Allison would hold as well) is an empirical and systematic matter for reflective judgment.²⁰ There is all the difference in the world

between the transcendental requirement of the Second Analogy that there be some counterfactual sustaining empirical law or other that covers any given event, and the question as to when and to what degree we ought to regard ourselves as entitled to assert that some particular proposed law is indeed a genuine law. The Second Analogy does indeed entail that empirical *lawlessness* is incompatible with the possibility of experience – but that hardly constitutes an attempt to provide us with a ‘principle of induction’.

- 2 The non sequitur charge is basically that Kant infers invalidly from the key premise (i) that if state of affairs A is followed objectively by state of affairs B (an event), then *necessarily* the order of the corresponding (subjective) perceptions A' and B' is also determined (this premise is usually granted to Kant by the objector); to the conclusion that *therefore* (ii) states of affairs A and B *themselves* must stand in a necessary causal connection which determines *their* order.²¹

In order to avoid this charge it is not necessary to deny that (ii) is in fact the conclusion of the Second Analogy, as Allison does by insisting that the Second Analogy ‘does not establish anything about the uniformity of nature, the ‘affinity of appearances’, or their conformity to necessary laws’ (*KTI*, p. 234). I have indicated why the argument of the Second Analogy requires the modal and generalizing force that is secured only by the judgment that there exist genuine causal laws. In conjunction with that reading, the non sequitur charge may be further defused by pointing out (as Allison himself does; *KTI*, p. 233), that the charge rests on a mistaken reading of the basic premises of Kant’s argument. For as premise (i) is explained according to the objectors, it typically *presupposes* a distinction between *empirically* subjective perceptions and *empirically* objective events, as well as certain allegedly necessary relations between the two. But Kant’s argument is precisely that the distinction between these objective and subjective orderings in general is itself *possible* only if the appearances themselves are subject to a condition which renders their order irreversible. If causal laws are indeed necessary for effecting *that* representation (as I have argued), then Allison’s own correct warnings against sneaking ‘empirical idealist’ assumptions into Kant’s crucial (and admittedly difficult) irreversibility thesis are sufficient to explain the error in the non sequitur charge (*KTI*, pp. 224–5, 233–4; and see section I above).

- 3 What Allison finds particularly objectionable (following Buchdahl) is that the ‘strong’ reading of the Second Analogy allegedly rules out the existence of ‘contingent sequences’ that are nonetheless *objective*; that is, cases in which state B (of object x) follows state A but where the sequence A–B is not ‘lawlike’ (*KTI*, p. 230). By ‘A’ Allison refers to the ‘perceptual antecedent’ of state B; and in relation to ‘lawlike’ he claims

(mistakenly I suggest) that the strong reading is committed to the following thesis:

that for every object x that changes from state A at t_1 to state B at t_2 , there must be some 'initiating condition' C , which may or may not have anything to do with A . This condition being given (together with certain unspecified 'standing conditions'), states of A 's *type* will necessarily be followed by states of B 's *type* in all objects of x 's *type*.

(*KTI*, p. 230)

In support of the existence of 'contingent happenings' that are not law-like in this sense Allison cites Buchdahl's claim regarding Kant's own example of the ship moving downstream: 'clearly', writes Buchdahl, 'we are not to imagine that the ship's sailing downstream is necessarily, if ever, an instance of a law-like happening, or that it is *as such* determined by preceding or underlying causes'.²² Far from this being clear, however, it seems to me that Kant precisely intends us to regard the movement of the ship as being lawfully determined by a complex of prior physical conditions.²³ More fundamentally, however, the strong reading of Kant's view (as I see it) is not committed to what Allison says it is – namely, that 'initiating condition' C being given, 'states of A 's *type* will necessarily be followed by states of B 's *type*' (in objects of x 's *type*).

For that characterization is itself only a more sophisticated version of what Allison rightly regards as the mistaken Schopenhauer objection to Kant (*KTI*, p. 230). It is generally agreed that the texts do not support Schopenhauer's charge that Kant is committed to regarding the actual 'perceptual antecedent' A as itself *the cause* of B . But neither is he committed, supposing the correct cause (X) to be given, to retaining A 's *type* either as part of the cause or as standing in any lawlike relation with B 's *type*. Take Schopenhauer's example (cited by Allison) of a person leaving his house at t_1 (A), followed by a brick falling on his head at t_2 (B). In casting about for the empirically lawful cause of the alteration of his head at t_2 (B), the man ought to reflect only on the very recent history of the brick (X) – it being a good hypothesis that it is such X -type events that have the power to produce such B -type events. He of course ought not to judge that house-departures (A) have B -type events as their uniform consequence, and Kant's (strong) view does not require that judgment. Kant's view presumably does imply, of course, that there is some wider description – incorporating at least the entire region of space that includes house, brick, and man at t_1 and at t_2 , and likely to concern only the more rarefied terms of mechanistic physics (e.g. probably not the types *house* or *brick*) – according to which this inclusive later state of affairs followed with necessity from that inclusive

earlier state of affairs. In general, then, and in accordance with the strong reading,

the

objectivity of the sequence A–B is a function of there being some appropriate empirical causal law that covers the coming-to-be of state B (e.g. $X \rightarrow B$); but *pace* Allison this does not entail that states of A's type must be followed by states of B's type (in all objects of man x 's type).

- 4 Allison does not deny that the concept of causality presupposes 'both the existence and the necessity of particular causal laws'. He insists nonetheless that, for all that the Second Analogy is intended to demonstrate, 'the possibility remains open that there might be nothing more than what could be termed "instantaneous laws", that is, laws with merely a single instance', while 'genuine laws require regularity and repeatability' (*I&F*, p. 85–6). However, (a) Kant does appear to link the concept of causality essentially with uniformity (e.g. A549/B577); (b) both that concept and his argument in the Second Analogy surely require, if not a plurality of *actual* instances of laws, at least *counterfactual force* (cf. the schema of causality: 'the real upon which, *whenever posited*, something else always follows'); and (c) we might wonder whether Kant would grant even 'logical possibility', never mind *real* possibility, to the notion of a world of nothing more than 'instantaneous laws'. (Compare the idea of a game consisting only of 'instantaneous rules'.)
- 5 Allison argues that it is implausible to hold the '*epistemological* thesis that the cognitive function supposedly performed by the causal principle can be accomplished only by means of an explicit appeal to [particular causal] laws' (*I&F*, p. 86). However, (a) on the interpretation offered above, the existential judgment that there be *some* particular causal law that subsumes the event which is 'this water freezing' (e.g.) does not demand, e.g., an explicit appeal to physical chemistry on the part of the perceiver; and (b) in relation to Allison's related claim that the Second Analogy 'licenses us to look for causal laws, but it hardly guarantees that we shall find them' (*I&F*, p. 86), this is both too strong and too weak: the Second Analogy provides *more* than a license to 'look for' empirical causal laws where it is a real possibility that (as on Allison's reading) *there might not be any in nature at all*; but the Second Analogy of course provides *less* than a guarantee that we shall manage to 'find' the right laws.
- 6 Finally, Allison raises an objection internal to the strong reading of the Second Analogy: '... a way must be found to deal with the apparently vicious circularity of the claim that the empirical laws supposedly required for the experience of events are, *qua* empirical, themselves based (at least in part) on the experience of a regular sequence of such events' (*I&F*, p. 89). However, Patricia Kitcher²⁴ appropriately responds

that Kant's 'claim is not that we must employ causal concepts *before* we can order states of affairs in time but that we can only do one by doing the other, and that "cause" cannot be gotten out of the senses'. Or if that is thought to misconstrue Allison's objection, consider Kant's own view that 'the proposition that everything which happens has its cause' (e.g.) has the 'peculiar character that it makes possible the very experience which is its own ground of proof, and that in this experience it must always itself be presupposed' (A737/B765). The principle of the Second Analogy thus appears to have just the status that the strong reading attributes to it.

One of the virtues of the interpretation of the Second Analogy I have been defending, I want now to suggest, is that its strict demand for empirical laws helps to explain some of the otherwise puzzling things that Kant has to say in the Dialectic of the First *Critique* and in the *Critique of Judgment* concerning our use of empirical concepts and our judgments concerning empirical kinds and laws. I will argue that in crucial respects reason's regulative role must be seen as firmly grounded in the justificatory requirements of the constitutive *understanding* (as understood above), not in reason's own ideals of maximal systematic coherence.

III

For present purposes, then, let us assume that the interpretation of the Second Analogy defended above is correct. Just as concepts without intuitions are empty, so are transcendental laws without empirical laws; and in particular, the general causal principle demonstrated in the Second Analogy is the second-order judgment that there exist first-order causal laws covering any given alterations in nature. There are further questions to be raised, however, as to what exactly is this necessary relationship between the transcendental requirements of understanding and the various empirical judgments that we put forward as candidates for fulfilling them. To put it crudely, how do we actually get from the transcendental laws to the empirical laws? I have already mentioned *one* crucial way in which Kant thinks this is achieved. In the *MFNS* Kant argues that a general framework of mechanistic/dynamical physical laws follows by strict a priori transcendental proof from the transcendental principles of the First *Critique* when the latter are enriched only with the most generic concept of matter as 'the movable in space'. For example, corresponding to the general causal principle of the Second Analogy (part of the First *Critique*'s 'general metaphysics of nature'), Kant's 'special metaphysics of nature' establishes a metaphysical 'law of inertia', which states that 'a motion insofar as it arises must have an *external* [lifeless] cause' (*MFNS*, pp. 543–4; italics added). Kant sums up

the general manner of thus instantiating the transcendental principles in the *MFNS* as follows:

And so a separate metaphysics of corporeal nature [*MFNS*] does excellent and indispensable service to general metaphysics [*First Critique*], inasmuch as the former provides instances (cases *in concreto*) in which to realize the concepts and propositions of the latter (properly, transcendental philosophy), i.e. to give to a mere form of thought sense and meaning. (*MFNS*, p. 478)

However, when we turn to the considerations Kant raises in the *First Critique* in the 'Appendix to the Dialectic: The Regulative Employment of the Ideas of Pure Reason' (A642/B671), as well as in the *Third Critique* (especially in the published and unpublished 'Introductions'), we find that there is quite another set of issues also involved in understanding the relationship between the transcendental and empirical levels of experience. While Kant certainly regards mathematical physics as the paradigm case of theoretical cognition, when he is treating of the regulative maxims of reason or reflection he is acutely aware of the fact that the vast majority of our seemingly legitimate empirical claims concern more full-blooded and less certain matters.

Consider one of the examples discussed earlier, that of *the melting of the wax following upon the heat of the sun* 'according to a fixed law' (*nach einem beständigen Gesetze*; A766/B794); or of the judgment of experience (which adds the a priori concept of causality to the mere judgment of perception) concerning the warming of the stone, 'which necessarily connects with the concept of sunshine that of heat' (*Prol.*, 301n). We are confronted with some particular alteration in a substance: some melting wax, a stone warming, or (to focus on a convenient illustration) a common case of sunburned skin. It follows according to the a priori metaphysics of physics presented in *MFNS* that any given case of sunburn, like every other event in nature, is a change of matter having an 'external' cause, where the quantity of matter (or mass) is conserved as a whole and where action and reaction in the communication of motion are equal to one another (see Propositions 1–4 of the 'Mechanics' chapter of *MFNS*). But of course this does not tell us what we want to know in relation to the cause of *sunburn* as such; it only informs us of the laws that all alterations in nature obey, without regard to any of their *specific differences* (i.e., apart from variable quantitative differences in mass, motion, and force). What we want to understand in this case is the cause of a given empirical kind of event per se – the cause of sunburn.

In this case, the name we give to the phenomenon reflects our assumption that it is *the heat of the sun* (as another empirical kind of phenomenon) that is such as to produce this kind of phenomenon according to a fixed

empirical law. Spelling out the latter will require such hypotheses as that ‘the heat of the sun causes the skin to burn *in circumstances C*’. What we will need is information concerning various *types* of weather conditions and *types* of skin conditions, both generically and specifically, and of the conditions under which (other things being equal) the two lawfully conspire to determine *this kind* of result. It is clear, furthermore, that the lion’s share of our actual causal judgments in both science and ordinary life are of this messy kind. In such cases we are either assuming, or looking to *find*, an appropriate empirical concept or empirical law that fits the particulars; and we are consequently interested in being able to *systematize* our empirical kinds and laws, however makeshift such a classification might be, so that we can know in advance where to look to find the concept or law that fits the case. To put it in the terms that Kant uses in the First *Critique*’s Appendix to the Dialectic, we are engaging in *hypothetical* as opposed to *apodeictic* reasoning; or to use the (in certain crucial respects) parallel terms later introduced in the Third *Critique*, we are engaging in *reflective* as opposed to *determinative* judgment (see below, section V).

One thing that Kant is struck with in these sections is the ease with which we successfully conceptualize, in empirical terms, the brute empirical diversity that confronts us in experience (as usual, there will be a deeper transcendental story behind this empirical observation). In the present case we assume that there is, in the nature of things, a *story to be told* about sunburn – however inaccurate *our* particular stories may be at any given time. Nature’s story, we assume, is one that would allow us (if we could only spell it out) to follow continuously ‘down’ into the specific details of biochemistry at the surface of the skin, or ‘upwards’ in the hierarchy of empirical laws into the universe of electromagnetic phenomena generally, of which this is presumably but one species. We assume, in short, that nature is made for the carving, and that it is even now partially revealing to us its own multi-levelled, indefinitely complex yet well-organized structure of empirical joints. As we shall see, it is assumptions such as these that will fall under Kant’s transcendental regulative principles of the *homogeneity*, *specification*, and continuous *affinity* of natural empirical forms and empirical laws (see A650–663/B678–691; and *CJ*, pp. 182–8; *FI*, pp. 210–16). This is also what Kant will mean in the *Critique of Judgment* by the regulative principle of reflective judgment that nature exhibits a subjective *purposiveness* (*Zweckmässigkeit*) in its empirical laws: it is as if nature were *made* for us to cognise it, as if neatly organized in infinite detail by a divine mind.

There are certain general assumptions, then, as to the simplicity, the generic uniformity, the continuous specificity, and in general the *systematic unity* or systematic organization of nature in all its empirical detail which Kant calls the subjective principles or regulative maxims of reason

(A666/B694) or reflective judgment (*CJ*, pp. 182, 185–6, 197). As indicated at the outset, however, our second perplexity concerns the unclear status of these regulative maxims. Do the maxims declare that nature is *itself*, that is objectively, a systematically organized unity? Or do these subjective principles not set any objective requirements on the structure of nature itself, but rather serve only as indispensable methodological aids to the understanding in its search for empirical laws? We have seen that Kant seems to want it *both* ways, and our task is to understand how this can be so.

Focusing first on the First *Critique*, certain uncontroversial features of the regulative maxims follow from the fact that they are based on *ideas of reason* that outstrip the bounds of possible experience (e.g. A642/B670ff.). It follows that they are incapable of any constitutive use and allow only of a regulative employment (A644/B672); they are not at all objectively valid *in the way that the categories* are objectively valid, in that regulative ideas cannot ‘determine objects’ (i.e. the *form* of objects) a priori (cf. A306/B362–3); and so although they can be given a transcendental deduction, this is not *in the same way that the categories* were given a transcendental deduction (e.g. A663–4/B691–2; A669–70/B697–8; cf. *CJ*, p. 184). The regulative maxims do, however, provide us with a kind of model or *analogon* (to use Kant’s term) of what it would be like for nature to be maximally or *ideally* systematic:

The understanding is an object for reason, just as sensibility is for the understanding. It is the business of reason to render the unity of all possible empirical acts of the understanding systematic; just as it is of the understanding to connect the manifold of the appearances by means of concepts, and to bring it under empirical laws. But the acts of the understanding are, without the schemata of sensibility, *undetermined*; just as the *unity of reason* is in itself *undetermined*, as regards the conditions under which, and the extent to which, the understanding ought to combine its concepts in systematic fashion. But although we are unable to find in *intuition* a schema for the complete systematic unity of all concepts of the understanding, an *analogon* of such a schema must necessarily allow of being given. This analogon is the idea [*Idee*] of the *maximum* in the division and unification of the knowledge of the understanding under one principle. For what is greatest and absolutely complete can be determinately thought, all restricting conditions . . . being left aside. (A665–5/B692–3)

(Note, incidentally, that this text supports the ‘strong’ reading of the Second Analogy discussed earlier: it is the business of the *understanding*

– not of reason, pace Buchdahl and Allison – to bring the manifold of appearance *under empirical laws*; although as we shall see, the understanding lacks the resources to adequately realize its own a priori demand.) The regulative maxims together present an Idea of the maximal systematicity of nature, an idea which by its very nature *cannot* have an a priori demonstrable objective correlate in the realm of nature in the way that the pure concepts of understanding demonstrably do have just such an objective correlate in the transcendental schematism. Thus the *analogon* or ‘schema of reason does not yield knowledge of the object itself (as is the case in the application of categories to their sensible schemata) but only a rule or principle for the systematic unity of all employment of the understanding’ (A665/B693).

Since we shall shortly see Kant making use of an important notion of the ‘*indeterminate* objective validity’ of the regulative maxims, and since in the passage just considered he characterizes the schema of sensibility as *determining* the pure concepts of understanding, let us refer to the *determinate* or *constitutive objective validity* that is possessed by the categories and the pure transcendental principles of understanding. What is ‘determined’ here, of course, are not the empirical details of given objects, but only the spatio-temporal and categorial law-governed *form* that characterizes each and every happening in ‘nature in general’. Whereas the categorial principles of pure understanding determine ‘the constitution of the objects’ in the sense of determining a priori their transcendently necessary schematic form, it is an illusion to think that reason’s regulative maxims are capable of doing so as well.

It is primarily when Kant has *this* contrast in mind that he will emphasize that the regulative maxims are ‘*subjective* principles which are derived, not from the constitution of an object but from the interest of reason in respect of a certain possible perfection of the knowledge of the object’ (A666/B694; italics added). Let us call this ‘possible perfection’ of our object-cognitions the regulative *ideal*²⁵ of the systematic unity of nature. The regulative ideal or ‘regulative law of systematic unity prescribes that we should study nature *as if* systematic and purposive²⁶ unity, combined with the greatest possible manifoldness, were everywhere to be met with, *in infinitum*’ (A700/B728). The regulative ideal of the systematicity of nature is thus *subjective* in the sense that it is *not an object-concept* (is not constitutively objectively valid) in the way that the categories are a priori object-concepts. In this sense the regulative ‘idea is . . . really only a heuristic, not an ostensive concept’ (A671/B699).

This contrast between the reason-based regulative ideal of the *complete* systematicity of nature on the one hand, and the constitutive objective validity of genuine categorial object-concepts on the other, is the primary source of Kant’s frequent insistence that the regulative maxims are not objectively valid but rather have merely a subjective ‘methodological’

or 'logical' use. But this contrast between reason-based ideal and constitutive objective validity is not the only important contrast operative in the First *Critique* Appendix. It turns out that the main task of understanding 'The Regulative Employment of the Ideas of Pure Reason' involves using this contrast in order to make sense of a *different* 'subjective/objective' contrast, one which *upholds* the objectivity of the regulative principles.

Kant begins the Appendix²⁷ by discussing reason's natural tendency to transgress the limits of experience, leading to a distinction between a proper, immanent, regulative use of reason's ideas, and a 'subreptive', sense-transcendent and allegedly constitutive use of those same ideas (A642–4/B670–2). The proper use of reason's ideas is not to create object-concepts, but rather to set for the understanding a certain goal (a *focus imaginarius*) in which the concepts of understanding in its engagement with experience are directed toward their 'greatest [possible] unity combined with the greatest [possible] extension' (A644/B672; cf. the regulative principles of homogeneity and specification, below). What the 'unity of reason' provides is thus '*systematization*' under the idea of a possible complete and organized whole of cognition; and we can detect the influence of such 'concepts of reason' or regulative ideas in the fruitful theoretical constructs and idealized laws and classifications imposed by natural scientists in their interrogation of nature (A645–9/B673–7). In this 'hypothetical' or regulative use of reason the 'sole aim' is to approximate the 'detailed knowledge' of understanding to a complete systematic unity, which, while it is 'only a *projected unity*', is indispensable as a guide for bringing greater coherence into the ongoing findings of the understanding (A646–7/B674–5).

At this point, Kant states that 'the only conclusion which we are justified in drawing from these considerations is that the systematic unity of the manifold knowledge of understanding, as prescribed by reason, is a *logical principle*' (A648/B676). It is a 'logical maxim' of reason, for instance, that we 'should reduce, as far as may be possible', the variable appearances we encounter – various observed faculties, forces, or powers for example – to an underlying identity (A649/B677; this is an application of the logical law of genera, A652/B680f.). On the other hand:

But to say that the constitution of the objects or the nature of the understanding which knows them as such, is in itself determined to systematic unity, and that we can in a certain measure postulate this unity *a priori*, without reference to any such special interest of reason . . . , that would be to assert a *transcendental* principle of reason, and would make the systematic unity necessary, not only subjectively and logically, as method, but objectively also. (A648/B676)

This passage fits straightforwardly with Kant's warning at the outset of the Dialectic that the idea of systematic unity 'is merely a subjective law

for the orderly management of the possessions of our understanding', an idea which 'does not justify us in demanding from the objects such uniformity as will minister to the convenience and extension of our understanding; and we may not, therefore, ascribe to the maxim any objective validity' (A306/B363–3; quoted above). Three paragraphs further on in the Appendix, however, Kant initiates an extended discussion intended precisely to demonstrate that the three 'logical laws' of *genera*, *species*, and *continuity* presuppose corresponding *transcendental* laws (of homogeneity, specification, and affinity). The latter ascribe the relevant systematic features to *nature itself*, and Kant claims that without the objective validity of such transcendental laws the merely logical or methodological maxims might 'lead the understanding astray' (A660/B688). In fact, Kant argues that without such transcendental laws no general empirical concepts, and so no faculty of understanding itself, and therefore 'no experience, would be possible' at all (A653–4/B681–2; see IV–V below). Far from being merely 'tentative suggestions' or 'hypothetically conceived unities',:

. . . it is evident that the laws contemplate the parsimony of fundamental causes, the manifoldness of effects, and the consequent affinity of the parts of nature as being in themselves in accordance both with reason and with nature. Hence these principles carry their recommendations directly in themselves, and not merely as methodological devices. (A660–1/B688–9)

Apart from the question of how Kant actually *argues* for the objective validity of the regulative maxims as transcendental principles (see section IV), we might wonder how these two broad claims – that they have no objective validity and are merely 'methodological' principles, and yet they are objectively valid, transcendental principles – can hang together at all.

Such considerations as this led Kemp Smith to declare²⁸ that the 'teaching of this section is extremely self-contradictory' (grist for the 'patchwork theory' mill). Rolf-Peter Horstmann has recently seconded this assessment:

The main problem of this chapter [the Appendix] consists in Kant's claim that the *logical* principle of unity required by reason presupposes a *transcendental* principle of the systematic unity of nature [A651]. This seems an odd claim in view of the fact that if there were such a transcendental principle, there would be no need to insist on the purely logical character and therefore merely regulative use of the principle of unity required by reason.²⁹

Horstmann accordingly simply sets aside this '(rather un-Kantian) idea of

purely regulative transcendental principles'.³⁰ Is it the case, then, that we must resign ourselves to the view that Kant's texts are simply inconsistent here, and that regulative principles cannot also be objective transcendental principles?

Toward resolving this difficulty we must first keep clearly in view the role of the contrast noted above – between a reason-based regulative ideal and constitutively objective categorial concepts – in relation to those passages where Kant denies that the regulative maxims are objective transcendental principles. Thus when Kant states that we can only draw the conclusion that 'systematic unity . . . as prescribed by reason, is a *logical* principle' – that is, that the regulative maxims serve only as 'subjective' methodological guides for the understanding – he is careful to contrast this with the following mistaken claim (A648/B676, partly quoted above; all italics added): 'But to say that the *constitution of the objects* . . . is in itself *determined* to systematic unity', and that '*all possible*' cognitions of understanding can be asserted to *have* 'the unity of reason required by reason', so that they can *all*, 'in spite of their diversity, be *deduced*' or derived from principles of reason – that would be to assert a transcendental principle that is indeed stronger than what we shall see Kant argue for on behalf of the objectivity of his regulative principles. In this passage Kant contrasts the status of his regulative principles with the illusion that, though based on ideas of reason, such principles might nonetheless provide determinate object-concepts; and he thus appropriately contrasts them as well with the (essentially dogmatic rationalist) idea that we could demonstrate a priori that nature itself in its entirety is essentially *logical*, that is that all its detail would follow *deductively* if only we had the right concepts and principles of reason. Kant's regulative principles are indeed, as we have seen, *subjective* in comparison to this illusion of a constitutive yet sense-transcending objectivity. The same observations hold true of Kant's assertion at the beginning of the Dialectic (noted above) that reason's maxim of systematic unity cannot be ascribed 'any objective validity': there, too, the contrast is with the constitutive objective validity that pertains, as he there puts it, only to the 'general ground of the possibility of knowing or of determining objects as such' (A306/B362).

Nonetheless, as I have indicated, Kant proceeds to argue that the regulative principles are *objective* transcendental principles in contrast to the idea that they should be regarded only as methodological directives or problematic hypothetical conjectures that might or might not be found to hold true of nature itself (see A650–66/678–94 *passim*). Thus we presuppose 'that parsimony in principles' or Ockham's Razor, for instance, 'is not only an economical requirement of reason, but is one of nature's own laws' (A650/B678). In conformity with such a maxim 'everyone presupposes that this unity of reason accords with nature itself, and that reason

– *although indeed unable to determine the limits of this unity* – does not here beg but command’ (A653/B681; italics added). The italicized phrase is important, since we shall see that the ‘objective but indeterminate validity’ (A663/B691) Kant grants to the regulative maxims is perfectly consistent with his constant reminder that these same maxims are merely subjective principles considered in contrast to the a priori constitutive or determinate objectivity of the categories and of the purely formal laws of understanding. What remains, then, is to examine how Kant actually argues for the indeterminate objectivity of the regulative principles, both in the First *Critique* and in the Third *Critique* as well.

IV

The difficulty in understanding the status of the regulative maxims is in large part due to the fact that in his arguments Kant weaves together considerations based on *reason’s* legitimate though potentially delusive demand for an ideal or complete systematicity, and *understanding’s* strictly warranted demand for empirical lawfulness (sections I and II above). Let us mark this distinction as that between the ‘interests of reason’ and the ‘needs of understanding’.³¹

The interest of reason in a (possible) completeness or systematic unity in the whole of our cognition, Kant claims, cannot be regarded as a merely useful or contingent supposition, but rather must be regarded as a possibility grounded in nature itself. ‘For with what right can reason, in its logical employment, call upon us to treat the multiplicity of powers [or forces] exhibited in nature as simply a disguised unity . . . if it be free to admit as likewise possible . . . that such systematic unity of derivation may not be in conformity with nature? Reason would then run counter to its own vocation . . .’ (A651/B679; quote continued below). At the outset of the Transcendental Dialectic Kant had argued that the very possibility of reason – as a faculty seeking logically sufficient premises for any given conclusion – required the assumption that if the ‘conditioned’ is to be regarded as given so must the entire unconditioned completeness of its conditions be regarded as given as well (A332/B389; A307/B364). The point of the Paralogisms, Antinomies, and the Ideal was to show that this expectation cannot be realized in any genuine object-concepts: since the ideas representing such completeness take us beyond the realm of possible experience, they have no determinate (sense-schematizable) objective validity. Kant is now reminding us in the Appendix, however, that reason’s logical requirement of completeness (reason’s ‘vocation’), though it is not satisfiable as such, is still a demand for a *real* completeness, that is for the completeness of *cognition*. But how can the unsatisfiability of reason’s *definitive* task be regarded as compatible with its very existence as a faculty? The task of the Appendix is finally to *resolve* the aporia that Kant

presented at the beginning of the Dialectic with regard to the completeness principle of reason, namely: 'Does it, or does it not, have objective applicability? What are its implications as regards the empirical employment of understanding? Or is there no such objectively valid principle of reason, but only a logical precept, to advance towards completeness . . .?' (A309/B365).

The answer will be that reason's ideal of a complete systematic unity of all our possible cognition is 'objective, but in an indeterminate manner' (A680/B708; cf. A694/B721). The several arguments for this conclusion Kant sums up in advance, in the following well-known passage (continuing A651/B679, above):

Reason would then run counter to its own vocation, proposing as its aim an idea quite inconsistent with the constitution of nature. Nor can we say that reason, while proceeding in accordance with its own principles, has arrived at knowledge of this [systematic] unity through observation of the accidental constitution of nature. The law of reason which requires us to seek for this unity, is a necessary law, since without it we should have no reason at all, and without reason no coherent employment of understanding, and in the absence of this no sufficient criterion of empirical truth. In order, therefore, to secure an empirical criterion [of truth] we have no option save to presuppose the systematic unity of nature as objectively valid and necessary. (A651/B679)

I have already indicated Kant's reasoning behind the premise that reason's law prescribing complete systematic unity 'is a necessary law, since without it we should have no reason at all'. The obvious danger, however, is that to assert that reason's (sense-transcending) ideal of systematic unity is straightforwardly *objective* suggests precisely the natural tendency toward transcendental illusion that Kant has just spent hundreds of pages warning us against. Kant's solution rests upon the claim that reason's interest in systematic unity is objectively valid in that it is a *condition necessary for the possible fulfillment of the needs of understanding*: 'without reason [we should have] no coherent employment of the understanding . . .'. It is the a priori warranted empirical demands of understanding (sections I and II) that we shall now see require that reason's ideal of systematic unity have 'objective validity, no matter how indeterminate that validity may be . . .' (A679/B697).³²

Kant accordingly argues that the three logical laws of genera, species, and affinity presuppose three corresponding transcendental laws of the '*homogeneity, specification, and continuity* of forms' (A658/B686). Let us focus on the first pair (genera/homogeneity). First, as anticipated, we find the reason-based consideration ('without it we should have no reason at

all') that the 'logical principle, [or] rule of the schools' which enjoins that we must always seek more generic concepts from which more specific ones may be deduced, presupposes a 'real' (and, we might add, potentially dogmatic) use of reason in which the relevant systematic feature (of simplicity or identity) is ascribed to nature itself: 'For we can conclude from the universal to the particular, only in so far as universal properties are ascribed to things as being the foundation upon which the particular properties rest' (A652/B680). So 'in conformity with the idea everyone presupposes that this unity of reason accords with nature itself' (A652/B681).

Secondly, as also anticipated ('without reason . . . no coherent employment of understanding'), we then find the following argument:

If among appearances which present themselves to us, there were so great a variety . . . that even the acutest human understanding could never by comparison of them detect the slightest similarity (a possibility which is quite conceivable), the logical law of genera would have no sort of standing; we should not even have the concept of a genus, or indeed any other universal concept; and the understanding itself, which has to do solely with such concepts, would be non-existent. If, therefore, the logical principle of genera is to be applied to nature . . . it presupposes a transcendental principle. And in accordance with this latter principle homogeneity is necessarily presupposed in the manifold of possible experience (although we are not in a position to determine in *a priori* fashion its degree); for in the absence of homogeneity, no empirical concepts, and therefore no experience, would be possible. (A654/B682)

Note that this argument does not require a 'maximum' of systematic unity (reason's ideal) but rather a *minimum* (more precisely, an *a priori* indeterminate degree) of empirical systematicity. We saw in sections I and II that the transcendental concepts and laws of pure understanding demand that certain first-order empirical judgments involving empirical concepts and laws are objectively valid. The way Kant argues for the status of the regulative maxims as (*a priori* indeterminate) objective transcendental principles – principles that are necessary for the possibility of experience – is by asking us to reflect on the possibility that, for all we can understand *a priori*, nature might (or might have) *resisted* our attempts to conceptualize it empirically. And he asks to consider the damage, so to speak, that such a quite conceivable scenario (as he stresses) would do – not in the first instance to *reason's* interest in systematic completeness – but more importantly to *understanding's* prior need to find its conceptual rules instantiated in the succession of appearances. In sections I and II we saw that the understanding

is justified in *demanding* empirical lawfulness (if experience is to be possible). But here in the (conceivably chaotic) empirical domain where the understanding lacks a priori legislative *insight* (since ‘existence cannot be constructed,’ as Kant elsewhere puts it; A179/B222), the understanding’s objectively valid requirement of empirical rules stands in need of an interpretation in terms of empirical concepts. But the possibility of any general empirical hypothesis whatsoever presupposes *some* degree of repeatability or ‘homogeneity’ in nature, and this is precisely what the transcendental principle of homogeneity asserts to be the case (to an a priori indeterminate ‘degree’).³³

In the spirit of Kant’s thought-experiment here, we might try to imagine what it would be like if most all our attempts at empirical classification failed; if, for example, the only empirical uniformity we managed to find in nature were that which is legislated a priori anyway by the laws of mechanics deduced in the *MFNS*. We find we can calculate, for instance, that every moving body obeys the laws of gravity – but that is all. No generalizations about sunburn – in fact, on this supposition there would be no repeatable *sort* of event such as sunburn. It is not without reason that such scenarios are difficult to imagine. For in such a world, it is not only that we fail to *systematize* the appearances in terms of empirical concepts, and thus disappoint the interests of reason; more importantly, we fail to *understand* the appearances in their specific empirical character, by failing to instantiate the laws of understanding to anything but the laws of mechanics. Furthermore, even applying Kant’s a priori laws of mechanics to actual experience will of course require more specific empirical concepts than that of ‘matter as the movable in space’ (subject to forces of repulsion and attraction, etc.) – that is, if our calculated trajectories are to be more than mere thought-entities. What Kant in this way thinks he is able to prove a priori regarding the regulative maxim of systematic unity is accordingly this: that if there is to be a criterion of empirical truth for the understanding – in fact stronger, if there we are to have and apply *empirical concepts* at all – then there must be *some* degree of empirical uniformity to be found objectively in nature itself. This requirement is based ultimately on the a priori justifiable demand of understanding for an empirical realization of its transcendental laws (sections I and II).

Similarly, the ‘logical principle of species’ is argued to presuppose a ‘*transcendental* law of specification’: for ‘it is only on the assumption of differences in nature, just as it is also only under the condition that its objects exhibit homogeneity, that we can have any faculty of understanding whatsoever’ (A657/B685). This principle too, however, ‘does not indeed demand an actual *infinity* of differences in the things which can be objects to us’ but rather affirms ‘only the *indeterminateness* of the logical sphere in respect of possible division’ into species and subspecies (A656/B684).

And finally, the logical law of ‘affinity’ also presupposes a transcendental law ascribing the relevant feature (in this case, *continuous* gradations in specification and generalization) to the objects of nature themselves; but this, too, ‘instructs us only in quite general terms that we are to seek for grades of affinity, and yields no criterion whatsoever as to *how far*, and *in what manner*, we are to prosecute the search for them’ (A661/B689; italics added).³⁴ Kant sums up his discussion of the three regulative maxims as follows:

The remarkable feature of these principles, and what in them alone concerns us, is that they seem to be transcendental, and that although they contain mere ideas for the guidance of the empirical employment of reason – ideas which reason follows only as it were asymptotically, i.e. ever more closely without ever reaching them – they yet possess, as synthetic *a priori* propositions, objective but indeterminate validity, and serve as rules for possible experience. (A663/B691)

In what sense, therefore, does the regulative principle of systematic unity thus serve as a ‘criterion of empirical truth’; and in what sense does it render the use of understanding ‘coherent’ and ‘self-consistent’ (e.g. A323/B380), and ‘guarantee its correctness’? Commentators have correctly emphasized the role played by the interests of reason in projecting an ideally consistent and complete systematic whole of cognition. Reason’s ideal of completeness serves as a ‘*focus imaginarius*’ prompting us to direct our empirical hypotheses ever-deeper (never to block the road of inquiry) and to seek always for unifying principles and theoretical simplifications. Our ‘natural illusions’ concerning Soul, World, and God are here converted into the aim of widening the scope and rendering more consistent our system of empirical beliefs as a whole.

But Kant is aware, the above arguments show, that there is still a threat of dogmatism in this approach – still a *quid juris* question that needs to be addressed. For reason’s ideal of systematic unity is not a mere conjecture or methodological guide, but rather an *a priori* transcendental presupposition regarded as holding true of nature itself. But how can an admittedly sense-transcending ideal be *objectively valid*? I have suggested that Kant’s solution to this aspect of the problem is to argue, first, that the genuinely objectively valid requirements of understanding issue directly in the demand for genuine lawfulness in the empirical realm (sections I and II); second, that the pure understanding cannot itself *legislate a priori* what particular forms this empirical lawfulness will take; third, that the global empirical assumptions spelled out in the regulative maxims are conditions that are necessary for the possibility of understanding (and so

of experience) itself; that is, they are necessary for the possibility of meeting the empirical demands of understanding that issue from the transcendental laws of pure understanding themselves; and finally, that the regulative *ideal* of systematic unity that is thus warranted does not flout the sensible limits on understanding set by the critical philosophy, since we are warranted in presupposing that systematic unity obtains in nature only to an a priori *indeterminable degree*. It seems to me that with this interpretation, ‘we are now’ (as Kant sums up the matter) ‘in a position to have a clear view of the outcome of the whole Transcendental Dialectic’:

The unity of reason is the unity of system; and this systematic unity does not serve objectively as a principle that extends the application of reason to objects, but subjectively as a maxim that extends its application to all possible empirical knowledge of objects. Nonetheless, since the systematic connection which reason can give to the empirical employment of the understanding not only furthers its extension, but also guarantees its correctness, the principle of such systematic unity is so far also objective, but in an indeterminate manner (*principium vagum*). (A680/B708)

Without the ideals set by reason, then, the understanding would merely ‘grope about’ (*FI*, p. 210) in seeking instantiations of its own a priori laws in their own proper empirical domain. But without the epistemic warrant provided in the first place by Kant’s argument from the empirical needs of understanding, the systematic ideals of reason would have no manner of objective validity. In one fell swoop, then, the way in which Kant *satisfies* (though in an a priori indeterminate manner) the cognitive demands of reason also serves to *limit* their application to the bounds of sense – just as had been the case with the categories of understanding.

V

In this final section I want to suggest, all too briefly, that Kant retained his views on these matters in the later *Critique of Judgment*, and in fact supported them with more forceful arguments.

Many commentators are inclined to see major shifts in the critical philosophy resulting from the doctrines of the Third *Critique*, and the particular issue we have been examining provides no exception. Paul Guyer, for instance, has recently argued (in ‘Reason and Reflective Judgment: Kant on the Significance of Systematicity’) that the ‘fundamental revision of [Kant’s] critical philosophy’ in the Third *Critique* consists in defending the thesis that I have argued Kant already defended in the First *Critique*, namely, that (as Guyer puts it) ‘the presupposition of systematicity is a

condition of the possibility of experience itself'.³⁵ (We saw earlier that Kant already explicitly asserts this, for example, at A663/B691.) In the First *Critique*, on the other hand, Guyer contends that 'the discovery of systematicity satisfies only an additional interest of reason rather than the fundamental interest of the understanding in the unity of experience itself' (p. 28). In the (allegedly) 'revised' position of the Third *Critique*, Guyer's suggestion is that Kant moved toward a wholesale revision of the status of his *categorical* principles, from being constitutive principles (as Kant holds in the case of all four groups of principles of understanding, including the Analogies: A664/B692) to being regulative principles. But if I am right, this is to miss the key role played by Kant's constitutive principles (e.g., the Second Analogy) in generating precisely those empirical needs that can only be met (although in an a priori indeterminate manner) by the ideal of systematicity – which is also the very reason that the latter ideal has such objective validity as it has. Unlike Guyer, on the other hand, Thomas E. Wartenburg had previously argued (in an important and unjustly neglected article, 'Order Through Reason: Kant's Transcendental Justification of Science') for a very different understanding of Kant's (supposed) change in position: while it was the First *Critique* that (as we have seen) assigned systematicity a necessary role in accounting for the possibility of objective empirical knowledge, the Third *Critique*, under pressure from doctrines relating to Kant's philosophy of aesthetics and biology, is said to have demoted the ideal of systematicity (nature's purposiveness) to 'a mere assumption' (italics in original).³⁶

In between the First and Third *Critiques*, then, did Kant radically change the status of his regulative ideal of systematicity (without any explicit indication of a change in position on the matter) in favour of *greater* objectivity (Guyer) or *less* objectivity (Wartenburg)? The position I am defending, if correct, has the merit of ascribing to Kant a consistent and stable position on the status of the regulative ideal of systematicity during the critical period. Guyer appropriately presses, however, for an explanation of why Kant reassigned the ideal of systematicity to 'reflective judgment' rather than 'reason' in the Third *Critique*.³⁷ To adequately support this claim would require a more extended discussion, but it seems to me that rather than representing a silent but radical revision in the critical philosophy, Kant himself indicates the reason for the reassignment.

In the Preface to the *Critique of Judgment* Kant states the following regarding the 'logical [as opposed to aesthetic] judging of nature' according to reflective judgment's regulative maxims (*CJ*, p. 169; cf. *CJ* Introduction s. VIII and *FI*, sections XI):

... here the principle has no direct relation to the feeling of pleasure and displeasure, while it is precisely this relation which

gives rise to that puzzle regarding judgment's principle [viz., whether it is objective or subjective], which necessitates a special division for this power in the critique: for the [mentioned kind of] logical judging according to concepts (from which no direct inference can ever be drawn to the feeling of pleasure or displeasure) could at most have formed an appendix, including a critical restriction on such judging, to the theoretical part of philosophy. (*CJ*, pp. 169–70)

Although the issue is a difficult one, I take Kant to be suggesting that without the additional factors pertaining specifically to *aesthetic judgment* in the *Third Critique* (particularly the role of the feeling of pleasure), the doctrine of nature's formal purposiveness and empirical systematicity would roughly equate with what had formed the 'Appendix' to the *Critique of Pure Reason* (which, in the context of the discussion in the Preface, is surely the work referred to as 'the theoretical part of philosophy'). One reason the issue is a difficult one is that the general principle of judgment concerning nature's purposiveness or empirical systematicity, which is prior to its division into aesthetic judgments as opposed to *teleological* or 'logical' judgments, by itself yields a 'logical objective necessity' involving precisely those regulative (logical) maxims of generic simplicity and specification that we are familiar with from the *First Critique* Appendix (*CJ*, p. 182). The logical judging of nature in the sense of *teleological* judgments is essentially tied to *concepts* of particular objects (e.g., organisms), while the *aesthetic* judging of nature involving the feeling of pleasure 'precedes any concept of the object' and therefore 'is the only one [of the two kinds of reflective judgment] in which the basis determining [it] lies solely in the power of judgement, unmixed with an[y] other cognitive power' (*FI*, p. 243). For we can make teleological reflective judgments merely 'by connecting reason with empirical concepts' since here, 'judgement merely follows the principle of reason' (*FI*, pp. 243–4).

So Kant's suggestion appears to be the following. The general principle of nature's empirical systematicity or 'formal purposiveness' articulated in the Introductions to the *Third Critique* does not itself depart in essential respects from the account of nature's purposive and systematic unity given in the *First Critique*. And in fact the more particular account of *teleological* logical judgments, for its part, could also have been offered as an application of the *First Critique* Appendix doctrines concerning regulative reason and empirical concepts (and of course, this direction was already explicitly taken in the *First Critique*; e.g. A687/B715ff.), since 'we can make these judgements only by connecting reason with empirical concepts'. *Aesthetic* reflective judgments, on the other hand, do not 'presuppose a concept of the object' (*FI*, p. 244) in the way

that teleological judgments do, and it is the former's 'direct relation to the feeling of pleasure or displeasure' that 'necessitates a special division' for the power of judgment in the critique. In the Third *Critique* this concept-independent aspect of feeling also enriches the *general* principle of nature's systematic purposiveness ('when we discover that two or more heterogeneous empirical laws of nature can be unified under one principle ... the discovery does give rise to a quite noticeable pleasure'; *CJ*, p. 187). But this is without detriment to the (*indeterminate*) 'logical objective necessity' that is possessed by the regulative maxim of nature's purposive and systematic unity in the *Critique of Judgment* (see below).

What needs to be at least suggested now is how this account can be made to square with Kant's repeated insistence in the Third *Critique* that the regulative maxim of nature's purposiveness is *merely subjective*, tells us *nothing objective about the constitution of objects in nature*, is a law *only for the use of our own judgment, prescribing no law to nature*, and so on (*CJ* Introductions, *passim*). I have explained above both the reasons for and the consistency of Kant's insistence in the First *Critique* that while the regulative maxims in one sense have 'no objective validity' and are 'merely subjective' (i.e., in contrast with the constitutive categorial principles), in another sense they have 'objective though indeterminate validity' and ascribe systematic unity to nature itself. In addition to those same reasons operating in the *Critique of Judgment*, Kant is here especially concerned to emphasize that the a priori principle of reflective judgment *does not have an a priori legislative domain* in the way that the laws of pure practical reason and pure understanding do. In this sense, Kant continually stresses, judgment's regulative principle of nature's systematic and purposive unity is one 'through which we do not actually cognize anything' (*CJ*, p. 169). But I hope it is clear by now that such a statement is consistent with Kant's holding that 'we necessarily [have] to assume that there is such unity [in nature] even though we have no insight into this unity and cannot prove it' (*CJ*, p. 184).³⁸

Concerning the demand for empirical laws following strictly from the pure transcendental laws of understanding (ss I and II), the arguments in the Introductions to the Third *Critique* also presuppose and require that interpretation. After explaining that judgment is determinative and subsumptive with respect to those transcendental laws that rest on the categories and make experience possible, Kant further explains (in accordance with the overall interpretation offered here) that

- 1 it is this transcendental concept of a nature as such, based on the laws of pure understanding, that requires the necessity of genuine empirical laws; but
- 2 that the understanding itself is incapable of legislating a priori the partic-

ular forms that such empirical lawfulness may take; so that
 3 the representation of this necessity can only be effected via judgment's regulative principle of the empirically systematic 'unity of the diverse' in nature. In Kant's words:

... since the laws that pure understanding gives a priori concern only the possibility of a nature as such (as object of sense), there are such diverse forms of nature, so many modifications as it were of the universal transcendental concepts of nature, which are left undetermined by these laws, that surely there must be laws for these forms too. Since these laws are empirical, they may indeed be contingent as far as *our* understanding can see; still, *if they are to be called laws (as the concept of a nature does require)* then they must be regarded as necessary by virtue of some principle of the unity of what is diverse, even though we do not know this principle.

(*CJ*, pp. 179–80; italics other than 'our' added)³⁹

The 'principle of the unity of what is diverse' is reflective judgment's principle of the formal purposiveness of nature, which is expressed in the same sorts of regulative maxims as those we have previously examined in relation to the First *Critique* (e.g. *CJ*, p. 185). Kant's statement that 'we do not know this principle' refers to the fact that we have no objective *insight* into the principle of nature's purposive systematicity in the way that we have constitutive insight into nature via the schematized categorial forms of pure understanding (as he explains at *CJ*, p. 183). In the passage here and throughout the two Introductions to the Third *Critique*, Kant makes clear that 'the concept of a nature as such', based on such pure laws of understanding as the principle of the Second Analogy, directly entails that there must be genuine *empirical* laws in nature (cf. e.g. *FI*, pp. 208–9). Nonetheless, as Kant emphasizes, such empirical laws are, as he puts it, '*contingent*' in relation to *our* understanding; that is, we can never have insight into their necessity in the way that we have insight into constitutively objective principles. Thus, here as in the First *Critique*, in order to effect the necessary instantiation of its a priori legislation the pure understanding stands in *need* of regulative principles to guide our empirical inquiries:

In thinking of nature as harmonizing, in the diversity of its particular laws, with our need to find universal principles [*Allgemeinheit der Prinzipien*] for them, we must, as far as our insight goes, judge this harmony as contingent, yet as also indispensable for the needs of our understanding (*Verstandesbedürfnis*) – hence as a purposive-

ness by which nature harmonizes with our aim, though only insofar as this is directed to cognition. (*CJ*, p. 186)

One of the arguments Kant puts forward for this conclusion is strikingly similar in form to the one we saw him offer on behalf of the regulative maxim of *homogeneity* in the First *Critique* ('If among the appearances which present themselves to us, there were so great a variety . . .'; A654/682):

For it is quite conceivable that, regardless of all the uniformity of natural things in terms of the universal laws, without which the form of an empirical cognition in general would not occur at all, the specific differences in the empirical laws of nature, along with their effects, might still be so great that it would be impossible for our understanding to discover in nature an order it could grasp . . . (*CJ*, p. 185)

Hence we must presuppose 'the *law of the specification of nature* in terms of its empirical laws', that is, 'that nature makes its universal laws specific . . . in a way commensurate with the human understanding with its necessary task of finding the universal for the particular offered by perception . . .' (*CJ*, p. 186) – that is to satisfy *the empirical needs of understanding*. As Kant emphasizes: 'consider the magnitude of the task, which lies a priori in our understanding, of making coherent experience out of given perceptions of nature even though this nature could contain an infinite diversity of empirical laws' (*CJ*, p. 184). This is a task *for the understanding*, but it is one for which it necessarily requires the aid of the regulative principle of nature's systematic unity or subjective purposiveness (without which we 'could not even search for and spot a law in the appearances'; *CJ*, p. 386). And although I have not focused specifically on that aspect in sections III–IV above, the concept of *purposiveness* itself had of course already been introduced to play an analogous (though less developed) role in the Appendix to the Dialectic in the First *Critique* (A 686–702/B 714–730, *passim*).

The 'concept of a purposiveness of nature' is the a priori concept 'of a lawfulness that is contingent objectively but necessary subjectively (for our cognitive power)' (*FI*, p. 243). The principle of the empirical systematicity of nature is 'contingent,' that is, as far as our a priori determinate objective insight is concerned, thus leaving it 'wholly *undetermined where and in what cases*' such empirical systematicity might obtain (*CJ*, p. 194; italics added). Just as in the First *Critique*, the principle of nature's purposive and systematic unity is 'objective' in the sense that it ascribes an indeterminate degree of empirical systematicity to nature itself. The stress on the aspect of indeterminacy is to be found in the *Critique of Judgment* just as in the *Critique of Pure Reason*: concerning reflective judgment's 'principle of

nature's subjectively purposive specification in its genera,' Kant writes that:

. . . judgment's presupposition [about this unity] is so *indeterminate regarding the extent* of that ideal . . . that if we are told that a deeper or broadened knowledge of nature based on observation must ultimately meet with a diversity of laws that no human understanding can reduce to a single principle, then we will be content with that too. But we would still prefer to hear others offer hope that if we had deeper insight into nature . . . then we would find nature ever simpler as our experience progressed and ever more accordant despite the seeming heterogeneity in its empirical laws. For judgment bids us proceed in accordance with the principle of nature's being commensurate with our cognitive power, as far as that principle extends, without deciding whether this principle has any bounds . . . *For though we can determine what the bounds are for the rational use of our cognitive powers, we cannot do so in the empirical realm.* (CJ, p. 188; italics added)

Kant's philosophy of nature grounds the rational 'hope' for such theoretical unification and simplicity not, as has so often been assumed, by insisting on the intrinsic legitimacy of reason's interest in systematicity per se, but rather by relating reason's natural urges to the needs of strictly constitutive understanding. In the Third *Critique* as in the First, of course, Kant is doggedly determined to emphasize that in comparison with the strictly legislative objectivity of the principles of pure practical reason and pure understanding, reflective judgment's principle of the systematicity of nature is one which 'holds only for the subject' and prescribes 'not to nature . . . but to itself' (CJ, pp. 185–6). It is unfortunate that Kant's emphasis on the strict standards that such principles *fail* to meet has served to obscure his own ingenious defence of their objectivity.

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Notes

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- 1 The literature on the Second Analogy is enormous; the following is a small selection of the works particularly relevant to the dispute here. In criticism of Kant's argument (Lovejoy, Strawson) or alternatively in favour of 'weak' versions of the Second Analogy (to be discussed below), see: A. O. Lovejoy, 'On Kant's Reply to Hume' in *Kant: Disputed Questions*, ed. Moltke S. Gram (Chicago: Quadrangle Books, 1967), pp. 284–308; Lewis White Beck, 'A Prussian Hume and a Scottish Kant,' in *Essays on Kant and Hume* (Yale University Press, 1978), pp. 111–29; P. F. Strawson, *The Bounds of Sense: An*

Essay on Kant's 'Critique of Pure Reason' (London: Methuen, 1966), e.g. p. 137; Gerd Buchdahl, *Metaphysics and the Philosophy of Science* (Cambridge, MA: MIT Press, 1969); 'The Conception of Lawlikeness in Kant's Philosophy of Science,' in *Kant's Theory of Knowledge*, ed. L. W. Beck (Dordrecht: Reidel, 1974); 'The Kantian "Dynamic of Reason" with Special Reference to the Place of Causality in Kant's System,' in *Kant Studies Today*, ed. L. W. Beck (La Salle, Ill.: Open Court, 1969), pp. 187–208; Susan Neiman, *The Unity of Reason: Rereading Kant* (Oxford University Press, 1994), ch. 2; Stephen V. Bagné 'Objects of Representations and Kant's Second Analogy' *Journal of the History of Philosophy* (1994), 32: 381–410; and Henry Allison, *Kant's Transcendental Idealism: An Interpretation and Defense* (Yale University Press, 1983), ch. 10, and *Idealism and Freedom: Essays on Kant's Theoretical and Practical Philosophy* (Cambridge University Press, 1996), ch. 6. I shall focus on Allison's work, referred to henceforth as *KTI* and *I&F* respectively.

On what Allison calls the 'strong' reading, which I shall defend, see Michael Friedman, 'Causal Laws and the Foundations of Natural Science,' in *The Cambridge Companion to Kant*, ed. Paul Guyer (Cambridge University Press, 1992), pp. 161–97; Arthur Melnick, *Kant's Analogies of Experience* (University of Chicago Press, 1973); Patricia Kitcher, *Kant's Transcendental Psychology* (Oxford University Press, 1990), e.g. p. 176; and Jeffrey R. Dodge, 'Uniformity of Empirical Cause–Effect Relations in the Second Analogy,' *Kant-Studien* (1982) 73: 47–54. For subtle intermediate positions, see e.g. Robert E. Butts, *Kant and the Double Government Methodology* (Dordrecht: Reidel, 1986), e.g. pp. 239, 247; and Paul Guyer, *Kant and the Claims of Knowledge* (Cambridge University Press, 1987), ch. 10; see also Guyer, 'Kant's Conception of Empirical Laws,' *Proceedings of the Aristotelian Society*, Supplementary Volume: (1990) 221–42.

- 2 In what follows I shall frequently leave unexpressed the required relativisation of Kant's transcendental claims as conditions that are necessary for the possibility of experience.
- 3 Strawson, *The Bounds of Sense*, p. 137. The objection was originally raised by A. O. Lovejoy in 1906, in 'On Kant's Reply to Hume'.
- 4 I argue briefly in section V below that the later view in the *Critique of Judgment* is consistent with, and in fact reinforces, Kant's earlier position in the *Critique of Pure Reason*.
- 5 References to the *Critique of Pure Reason* are to Kemp Smith, trans. (London: Macmillan, 1965), with standard 'A/B' citation for the first and second editions (any alterations in the translation will be noted). References to the *Critique of Judgment* are to Werner S. Pluhar, trans. (Indianapolis: Hackett, 1987), with 'CJ' followed by the marginal page references to volume V of the *Akademie* edition ('Ak.') of Kant's works, and 'FI' for the unpublished 'First Introduction' to *CJ* (in Pluhar as well), contained in volume XX of that edition.
- 6 For references, see sections III–V below. I should note in addition that R. E. Butts (*Kant and the Double Government Methodology*) has argued for the overall coherence of Kant's account of the regulative maxims (see esp. chs. VII–IX). I agree with much of Butts' account, although his ultimate conclusion that the 'justification of the principles of the logic of system rests on aesthetic [and overall pragmatic] grounds' (ibid., p. 220) is perhaps in the end closer to Buchdahl's position (see below) than to the one developed here.
- 7 Philip Kitcher in 'Projecting the Order of Nature' (in Robert E. Butts, ed., *Kant's Philosophy of Physical Science*, Dordrecht: Reidel, 1986) has previously stressed the connection between the Second Analogy and the perplexity

regarding the status of the regulative principles of reason. Although I depart from Kitcher's account in certain important respects (see below), his interpretation is insightful and has the substantial merit of developing an independently defensible and broadly Kantian philosophy of science. See also Kitcher, 'Kant's Philosophy of Science,' in A. Wood, ed., *Self and Nature in Kant's Philosophy* (Ithaca: Cornell University Press, 1983), and 'The Unity of Science and the Unity of Nature', in Paolo Parrini, ed., *Kant and Contemporary Epistemology* (Dordrecht: Kluwer, 1994); as well as his other writings on the philosophy of science, e.g. 'Explanatory Unification', *Philosophy of Science* (1981) 48: 507–31; and *The Advancement of Science* (Oxford University Press, 1993).

- 8 I am aware of such reservations as that expressed by Henry Allison in relation to characterizing the explanandum in the Second Analogy as a *sequence of events*. Allison takes this to be an important mistake, since Kant is talking about the possibility of cognizing only *the single event* which is the alteration of states of one continuant substance (see, e.g. *I&F*, p. 87). The discussion in section II below should make clear why I do not think that this point has the significance Allison attaches to it.
- 9 For a clear account of these matters, see Graham Bird's 'Kant's Transcendental Arguments' in *Reading Kant*, ed. E. Schaper and W. Vossenkuhl (Oxford: Blackwell, 1989). It seems to me that the reading of the Second Analogy I offer here preserves the sharp conceptual distinction between the transcendental and the empirical that Bird has argued is necessary for giving any coherent account of Kant's transcendental idealism (see his *Kant's Theory of Knowledge* (London: Routledge & Kegan Paul, 1962), for anticipations of many later developments in Kant interpretation along these lines). In particular, the view to be defended here is compatible with the fact cited by Bird (essentially a scope-distinction) that for Kant to 'recognise an event is to presuppose that some causal factor is present, but not to presuppose any particular causal factor', as well as with the point that the principle of the Second Analogy 'needs to be supplemented empirically in order to yield any particular causal law' (*ibid.*, p. 162). We do not need the Buchdahl/Allison 'weak' reading of the Second Analogy in order to capture these distinctions
- 10 This would seem to be one important respect in which the present account differs from Kitcher's interpretation (see note 7). Kitcher argues that 'the Appendix to the Ideal completes the work of the Second Analogy by *explaining how we are justified* in distinguishing merely accidental regularities from those that are endowed with counterfactual-sustaining force' ('Projecting the Order of Nature', p. 221; italics added). As I see it, the Second Analogy is already fully successful in justifying the judgment that there exists some counterfactual-sustaining causal law (as opposed to an accidental regularity) covering any given event. The purpose of the regulative principle of systematic unity is not to 'generate' the notion of a counterfactual-sustaining causal law ('The Unity of Science and the Unity of Nature', p. 260); rather, the regulative idea is itself justified only because it states an additional necessary condition for fulfilling (i.e. for *instantiating* empirically representing) the already strictly justified demand of the Second Analogy for the existence of such particular causal laws. One might put it that the Appendix stands to the Second Analogy as the latter stands to the Transcendental Deduction. I shall argue that it is the a priori laws of pure understanding that firmly remain the source of epistemic *justification* even in the case of the 'indeterminate objective validity'

(A663/B691) that is possessed by the regulative principles of reason (see sections III–IV below). Perhaps this difference in outlook results from Kitcher's desire to unburden Kant's theory of its reliance on a priori principles – an understandable philosophical aim, but one which carries obvious interpretive dangers with it.

- 11 *I & F*, p. 90, italics added.
- 12 For recent support of this claim see, in particular, the opening sections of Michael Friedman's 'Causal Laws and the Foundations of Natural Science'.
- 13 Here the account I want to offer appears at first glance to be incompatible with Friedman's, since he links 'genuine' Kantian objectivity exclusively to the way in which the *MFNS* determinately instantiates the categorial principles, along with the way Kant arguably envisioned the expansion of this Newtonian paradigm in the *Opus Postumum* (see Friedman's groundbreaking work, *Kant and the Exact Sciences* (Harvard University Press, 1992)): '... ordinary experience at the more commonsensical level is [thus] to become fully objective and determinate [only] as science progresses ...' (Friedman, 'Kant and the Twentieth Century', in P. Parrini, ed., *Kant and Contemporary Epistemology*, pp. 35, 38). We shall see Kant argue, however, that the regulative principle of a 'purposive and systematic unity of nature' already explains the possibility of non-apodeictic yet *objective* empirical judgments, based on what he calls the 'indeterminate objective validity' of that regulative principle (see sections III–V below).
- On the other hand, my thesis that the justification of this status for the regulative principles itself ultimately derives from the strictly constitutive demands of the understanding fits nicely with much that Friedman wants to emphasize; and perhaps Friedman's distinction between 'provisional' objectivity and 'determinate' objectivity (e.g. *ibid.*, p. 35) could be interpreted in terms of the distinction in Kant highlighted here between 'indeterminate' and 'determinate' objective validity. In this way Kepler's phenomenal laws, for instance, might qualify as genuine 'judgements of experience', and not (as Friedman suggests, *ibid.*) as mere 'judgements of perception' (which according to Kant merely record associations among a perceiver's own subjective states: see, e.g., Kant's *Lectures on Logic*, J. Michael Young tr. and ed. (Cambridge University Press, 1992), pp. 608–9; *Ak.* IX: 114).
- 14 References to this work ('*MFNS*'), as well as to Kant's *Prolegomena to Any Future Metaphysics* ('*Prol.*') are to James W. Ellington, trans., *Kant's Philosophy of Material Nature* (Indianapolis: Hackett, 1985), followed by marginal page references to *Ak.* IV. For important recent work on the place of the *MFNS* in Kant's system as a whole, see Michael Friedman, *Kant and the Exact Sciences*, as well as the papers collected in Robert E. Butts, ed., *Kant's Philosophy of Physical Science: Metaphysische Anfangsgründe der Naturwissenschaft 1786–1986* (Dordrecht: Reidel, 1986), and further references therein.
- 15 See *MFNS Ak.* 476–7. This interpretation accords with Friedman's view, who argues furthermore (more controversially) that with the addition of Kepler's phenomenal laws Kant also intended a similar a priori derivation of the law of universal gravitation.
- 16 Contrast the closely related interpretation of Philip Kitcher; see above, note 10. Kitcher claims that while Kant's response to Hume in the Second Analogy implies 'that there must be some justification for our claims about causes and counterfactual-sustaining generalizations Kant does not say explicitly what that justification is' ('Projecting the Order of Nature', p. 221). I interpret the Second Analogy as providing that justification.
- 17 See A191/B236, A192/B237, and *passim*. This does not mean that we cannot

describe scenarios under which, for example, while the ship indeed travels from upstream to downstream, I nonetheless receive visual or auditory impressions of the ship's position downstream *before* I apprehend its being upstream. Kant is not talking about the ordering of subjective perceptions in consciousness understood as 'distinct existences' (in Hume's sense), which are 'bound down' by the objective succession in a *causal* manner. See the accounts of the Second Analogy in Allison (*Kant's Transcendental Idealism*; e.g. p. 225) and Guyer (*Kant and the Claims of Knowledge*, e.g. pp. 247–9) for guidance past this and several other mistaken objections to the Second Analogy, as well as better help than most with Kant's difficult 'irreversibility' claim (which I have only briefly treated here).

- 18 See the references to the 'strong' interpretation in note 1 above.
- 19 For these objections see Allison's *KTI* ch. 10 and *I&F* ch. 6 ('Causality and Causal Law in Kant: A Critique of Michael Friedman'). See also Susan Neiman, *The Unity of Reason*, ch. 2, for a similarly vigorous defence of the Buchdahl interpretation. As far as I can see, the considerations I offer here in response to Allison's objections address most of Neiman's concerns as well. In general, Neiman offers a powerful synoptic view of the importance of reason across all of Kant's critical philosophy, much of which I can agree with despite the present disagreement (concerning which, if I am right, she underestimates the justificatory role of the understanding in relation to reason's ideals).
- 20 On induction, see Kant's *Lectures on Logic*, pp. 625–7 (*Ak.* IX: 131–3); and cf. the Appendix to the Dialectic, e.g. A649/B677, A653/B681.
- 21 We set aside here complications concerning whether A need be *the* cause of B; see (3) below.
- 22 Buchdahl, *Metaphysics and the Philosophy of Science*, p. 650; quoted in Allison *KTI*, p. 231.
- 23 In an example from his *Lectures on Metaphysics* Kant simply supposes 'the wind' to be the relevant lawful cause: '... how comes it about that if the wind is posited something quite different – namely, the motion of the ship – also follows?' (*Ak.* XXVIII, 403–4; cited and trans. by Guyer, *Kant and the Claims of Knowledge*, p. 238). In general, I think it is *prima facie* unlikely that in the age of Newton the motion of a body (ship or not) would be regarded as an instance of a *contingent* happening in Allison's sense of not being a lawlike happening. Perhaps sensing this, Allison substitutes an invented case of his own (*KTI*, p. 231). As he himself sets it up, however, it appears to be a case of causal over-determination, which does nothing (as far as I can see) to cast doubt on the claim that causal lawlikeness is a necessary condition for the experience of an objective event. At any rate, in the text I proceed to argue that these objections are based on a misconception of the 'strong' view (as defended here).
- 24 Patricia Kitcher, *Kant's Transcendental Psychology*, p. 178.
- 25 The regulative principle of the systematic unity of nature is *thought* most determinately in the idea of a 'complete purposive unity, constitut[ing] what is, in the absolute sense, perfection' (A694/B722) – which is essentially the 'Ideal of Pure Reason', i.e. the idea of (a deistic) God. So it is appropriate to speak of the 'maximum' posited by the regulative maxims as a regulative *ideal*.
- 26 Note the emphasis on *purposiveness* here and in surrounding passages in the *First Critique*, which comes to prominence later in the *Third Critique*.
- 27 For helpful recent discussions of the Appendix focusing on Kant's philo-

- sophical methodology of science, see Thomas E. Wartenburg, 'Reason and the Practice of Science,' in Guyer, ed., *The Cambridge Companion to Kant*, pp. 228–48; and Kathleen Okruhlik, 'Kant on Realism and Methodology' in Butts, ed., *Kant's Philosophy of Physical Science*, pp. 307–32. See also Margaret Morrison, 'Methodological Rules in Kant's Philosophy of Science', *Kant-Studien* (1989) 2: 155–72. Note that I am arguing for a stronger thesis than that the regulative maxims of reason are necessary for the possibility of systematic empirical science in Kant; they are necessary for the possibility of any understanding at all.
- 28 Norman Kemp Smith, *A Commentary to Kant's 'Critique of Pure Reason'* (London, 1923), p. 547. See Jonathan Bennett, *Kant's Dialectic* (Cambridge University Press, 1974), for a similarly negative assessment of the coherence of Kant's Appendix chapter.
- 29 Rolf-Peter Horstmann, 'Why Must There Be a Transcendental Deduction in Kant's *Critique of Judgement*?' in *Kant's Transcendental Deductions* (Stanford University Press, 1989), p. 259 n9.
- 30 Horstmann, *ibid.*, p. 259 n10 and p. 166. Horstmann refers to another article by Wartenburg (noted below) who, pace Horstmann, correctly attributes this (allegedly) 'rather un-Kantian' idea to Kant.
- 31 I do not want to rest too much on the terminology here. Kant characterizes the 'interest' of reason in complete systematic unity as a legitimate demand and a need as well as an interest, since 'without it we should have no reason at all' (A651/B679; cf. A642–3/B670–1); and likewise, we have seen in sections I and II that the empirical 'needs' of understanding are based on strictly a priori grounds (the Second Analogy) and so in no way do they reduce to mere *psychological* needs. What will be important throughout are the different reason-based and understanding-based considerations themselves.
- 32 In the Appendix to the Dialectic Kant emphasizes the question of the possibility of the understanding's employing empirical *concepts*, while in the Introductions to the Third *Critique* (see section V below) the main focus is on the possibility of a system of empirical *laws* (and the connection to sections I and II above is accordingly more direct and transparent). Both considerations, however, are to be found in both *Critiques*.
- 33 Kant here focuses in particular on the need for similarity. Elsewhere, however, he makes clear that the regulative principle of systematic unity also posits an indeterminate degree of uniformity in nature's properties and powers (A662/B690), ultimately in order to view the appearances as connected according to the principle of *causality* (A699–700/B727–8).
- 34 On the *indeterminateness* of the manner and degree of systematicity in nature, in the First *Critique* see also A665–6/B693–4, A668/B696, A669/B697, A680/B708, A693/B721. Note, incidentally that after having argued for the (indeterminate) objective validity of the maxims, Kant once again returns to emphasizing that they are merely *subjective* principles in that they do not provide a priori constitutive 'insight into the object' (note the several references to 'objective insight', 'observation and insight', etc., at A667–8/B695–6). Kant's failure to signal clearly which 'subjective/objective' contrast is operative in certain contexts encourages the mistaken assessment that the Appendix is a bundle of contradictions.
- 35 Paul Guyer, 'Reason and Reflective Judgment: Kant on the Significance of Systematicity' *Nous* (1990) 24: (17–43): 39.
- 36 Thomas E. Wartenburg, 'Order Through Reason: Kant's Transcendental Justification of Science', *Kant-Studien* (1979) 70: 417n. Wartenburg's detailed

and insightful exposition of the argument of the Appendix correctly stresses the objective side of Kant's principle of systematicity. I agree with much of his analysis, although I put more stress on the role of the understanding in the justification of the principle, as well as emphasizing the key part played by the notion of an indeterminate objective validity.

- 37 As the preceding has hopefully made clear, the texts do not support Guyer's claim that in the First *Critique* Appendix 'there is no hint that systematicity is a necessary condition for any successful use of understanding at all' ('Reason and Reflective Judgement', p. 33). The most obvious counterexample (A651/679) is noted by Guyer and then passed by (p. 28); and the argument for the transcendental law of homogeneity (A653-4/B681-2) is dismissed for the rather obscure reason offered on p. 29. In company with many other commentators, the key role of the understanding is obscured by suppressing the required distinctions when they are needed (e.g. concerning indeterminate degree vs constitutive objectivity; see, e.g., pp. 31-3, 42); alternatively Kant is mistakenly supposed to make, and then (not surprisingly) to 'collapse', certain sharp distinctions (see n7, and p. 23). On the other hand, Guyer correctly stresses the importance of the understanding in Kant's argument in the *Critique of Judgment*; and in general his inquiries do a service in challenging those of us who are perhaps over-inclined to seek unity to attend more carefully to the 'manifoldness' in Kant's arguments (cf. A666-7/B694-5).
- 38 It should also be kept in mind that Kant quite generally characterizes as 'subjective' whatever is *empirical* in contrast to the logical. In his *Lectures on Logic* (Ak. IX: 131-2) the definition of 'reflective judgment' includes the remark that it 'has only *subjective* validity, for the universal to which it proceeds from the particular is only *empirical* universality – a mere analogue of the *logical*'. If my general thesis is correct, then the objective/subjective contrast here is not a sharp contrast between what can hold true of nature itself (however contingently) *versus* what pertains only to human attitudes, subjective states, or methodological strategies (however necessary).
- 39 Or as he puts it a few pages later: 'for though the universal natural laws do make things cohere in terms of their genus, as natural things as such, they fail to provide them with specific coherence in terms of the particular natural beings they are' (*CJ*, p. 183).