

Paul Ziche

# Epistemic Confidence – Kant’s Rationalization of the Principles of Seeking and Finding<sup>1</sup>

**Abstract.** *It is essential for the Kantian programme that it can develop principles for the seeking and finding of knowledge. This requires Kant to combine the openness that is required for discovering genuinely novel knowledge with the necessity provided by principles. This combination of extreme methodological openness with strong principles should add to our understanding of Kant’s position vis-à-vis empiricism and rationalism. It will be shown that Kant indeed develops an open methodology that is intended to give direction to our cognitive practices without determining their results. This implies a revision of the standard understanding of ideas of reason in their regulative use: Kant’s imagery of “horizons” and “mirrors” suggests that, in principle, all concepts can function as regulative ideas. In the absence of clear ways of categorizing philosophers as either ‘empiricists’ or ‘rationalists’ in Kant’s period, these methodological issues help consolidate our picture of how Kant positions himself within the field of options that became labelled by these terms.*

*Es ist essentiell für das kantische Programm, dass es Prinzipien zum Suchen und Auffinden von Erkenntnissen entwickeln kann. Das erfordert es für Kant, die Offenheit, die man zum Auffinden von Neuem benötigt mit der Notwendigkeit von Prinzipien verbinden zu können. Diese Verbindung trägt zu einem besseren Verständnis von Kants Verhältnis zum Empirismus und zum Rationalismus bei. In dem Aufsatz wird gezeigt, dass Kant wirklich eine offene Methodologie entwickelt, die unsere Suche nach Erkenntnis anleitet, ohne deren Ergebnisse vorwegzunehmen. Dies impliziert eine Revision der Standardinterpretation der Ideen der Vernunft in ihrem regulativen Gebrauch. Kants Bilder von „Horizonten“ und „Spiegeln“ legen es nahe, dass im Prinzip alle Begriffe als regulative Ideen dienen können. Diese methodischen Themen helfen uns zu klären, wie Kant sich innerhalb von Optionen positioniert, die wir als empirische und rationalistische bezeichnen, in einem Kontext, in dem es noch keine klaren Kriterien für Empirismus oder Rationalismus gibt.*

---

<sup>1</sup> Research for this paper has been supported by NWO, the “Dutch organization for scientific research”; I am very grateful for NWO’s support in the context of my project “Thinking classified. Structuring the world of ideas around 1800”, and to my colleagues in this project for an intense exchange of ideas.

## 1 Rationalism and empiricism: Open heuristics and necessary principles

Historiographically, “empiricism” and “rationalism” are anachronistic terms when applied to Kant. Neither of these terms had an established usage before Kant or in Kant’s time, and Kant himself contributed importantly to fix the meaning of these terms, and to give them their function as labels attaching to broad types of philosophizing.<sup>2</sup> This implies that Kant cannot, in non-anachronistic terms, engage with “rationalist” or “empiricist” thinkers, and that it is equally anachronistic to read Kant as integrating the rationalist and empiricist types of philosophizing.<sup>3</sup> Nevertheless, this integrative claim remains reasonable; one can clearly trace features of (what came to be known as – a qualification that I shall drop in the rest of this paper) empiricism and rationalism in Kant’s philosophy, and just as clearly the relationship between these features poses important interpretative problems, not the least because Kant’s own attitude towards empiricism and rationalism is hardly ever made fully explicit in his texts.

A typical pattern that can be found in various forms throughout Kant’s *oeuvre* consists in combining the epistemic rigour provided by strong principles, and cherished by rationalists, with the kind of openness that only empirical input can guarantee. Take the operation of amplifying our knowledge. This operation is inscribed into the core of transcendental philosophy, both affirmatively, in Kant’s emphasis on the importance of synthetic judgements and on the role of experience, and critically, in his critique of unwarranted claims to expand the scope of our cognitive procedures. The terminology of aiming for an integration of empiricism and rationalism makes it possible to state the key problem that is raised by the challenge of providing a methodology for the expansion of knowledge: it is essential for cognitive expansion that it does not just analytically unfold (for instance by means of logical deduction or conceptual clarification) what

---

<sup>2</sup> The key passage being, of course, the section on the “history of pure reason” at the very end of the first *Critique*. On the historiography of these concepts, cf. Engfer 1996, on Kant pp. 355–434; Vanzo 2013, strongly emphasizing Kant’s rationalist leanings; Vanzo 2016. Anderson 2015 provides an up-to-date presentation of Kant’s critical analysis of the rationalists’ explanation of the genesis of concepts. See also the work of the research group on “Early modern experimental philosophy” at the University of Otago (<https://blogs.otago.ac.nz/emxphi/tag/kant/>) who critically discuss the reading of Kant as synthesizing empiricism and rationalism.

<sup>3</sup> Vanzo 2013 and Engfer 1996 summarize arguments, both historiographical and systematical, against this reading.

is already present in the knowledge (concepts, definitions, laws, etc.) that we already have.<sup>4</sup> This immediately rejects strategies that became characteristic for rationalist approaches as means to properly extend our knowledge. Rather, a fruitful methodology must allow for genuine novelty in our cognitive procedures – the kind of novelty that, in Kant's epistemology, only synthetic judgements or empirical input can generate.<sup>5</sup> There are empiricist models, for instance, for the formation of concepts. Kant, however, standardly views these as insufficient, on the basis of their failure to account for the kind of certainty that we find in mathematics and natural science, and because they do not provide guidelines that prevent a mere groping around, an unguided "*Herumtappen*" that Kant criticizes in a great variety of contexts.

Phrased very informally: What we need, and what Kant aims at giving us, is a "heuristic",<sup>6</sup> an account of the workings of our cognitive apparatus that allows for the *openness* required for making genuine discoveries while maintaining a crucial role for the *guiding power of principles*. Put differently: Kant should present us with arguments that claim a strong form of *necessity* for an *open methodology* in the sense that it can be shown with necessity that we have to adopt certain principles that themselves impose necessary structures upon our epistemic procedures without, however, thereby determining (beyond certain very fundamental forms of structuring, as given in the transcendental aesthetic and analytic) what the results of these procedures will be. In what follows, I shall investigate this problem with a focus on the kind of principles that Kant offers us for *seeking* expansions of our knowledge. Providing principles for actively seeking novel knowledge is not the same as accounting for the validity of knowledge

---

4 A particularly clear passage to this effect in *What real progress has metaphysics made in Germany since the time of Leibniz and Wolff?*: "Thus his [Leibniz'] principle of sufficient reason, since he located it in mere concepts, was also not of the slightest help to him in getting beyond the principle of analytic judgments, the law of contradiction, and extending himself in synthetic *a priori* fashion by reason." (Ak. 20, p. 283) Note that this passage does not refer directly to the expansion of our knowledge, but rather to *principles* of judgments: The Leibnizian approach is deficient in not being able to get beyond the *principle* of analytic judgments; Kant is not only asking for non-analytic judgments, but for principles for synthetic judgements.

5 See the explicit reference to Bacon in § 56 of Kant's *Anthropology*, in connection with the "*Nachforschungsgabe*"/"gift of inquiry" (Ak. 7, p. 223). – On the role of novelty in amplifying our knowledge, cf. Anderson 2015, p. 272.

6 Kant himself uses this term repeatedly, e.g. Ak. 5, p. 411; Ak. 8, p. 133; A 671/B 699; A 771/B 799. – On heuristics in Kant, see van Zantwijk 2009, pp. 41–50; Gracyk 1991; van Peursen 1993, pp. 181–213. See also Guyer 2005, e.g. pp. 31, 64 on the role of "seeking" and "finding" in Kant's philosophy, and here in particular on the interplay between the transcendental dialectic and the reflective use of the power of judgment.

claims in terms of the necessary combination of *a priori* principles and possible experience. This should affect our understanding of the way in which empiricist and rationalist ingredients blend into one another in Kant's oeuvre: Kant himself opens up the tightly-knit framework of the transcendental aesthetic and analytic to an extent that itself is surprising, making room for non-definitive orderings of our knowledge, for conjectures, even for guesswork, while at the same time maintaining a discourse in terms of principles.

These issues will be addressed by first presenting the enormous openness of Kant's remarks concerning a heuristic method (section II), and by then (section III) giving a close analysis of Kant's imagery in describing the role of regulative ideas. It will be shown here that Kant indeed intends to give us a methodology that is not so much directed by unachievable ideas as by incorporating ideas into the immanent workings of our cognition. Kant goes beyond a mere integration of empiricist and rationalist motives: One of the attractions of a Kantian heuristics lies in the fact that a heuristics does not work via combining empiricist and rationalist elements or sub-methodologies, but requires Kant to investigate the possibility of a stance that is intrinsically open and principle-guided at the same time.

## 2 “The law of reason to seek unity is necessary” (A 651/B 679) – Kant's open heuristics

It seems clear that the principles of the understanding do not provide a strategy for a heuristics; the transcendental analytic formulates necessary criteria that need to be fulfilled for a claim to count as knowledge, but these give us few concrete strategies with which we can direct our active employment of our faculties for seeking novel knowledge. It is less clear that reason should be unable to do so;<sup>7</sup> after all, regulative ideas seem to provide a reason-guided way of expanding our knowledge. However, an immediate difficulty derives from the fact that the methodological remarks in the chapter on the “Regulative Use of the Ideas of Pure Reason” in the Appendix to the Transcendental Dialectic and in the Doctrines of Method in the first and the third *Critique*, are surprisingly unspecific in naming the ideas that are supposed to be relevant for guiding our knowl-

---

<sup>7</sup> As claimed in van Zantwijk 2009, p. 46.

edge-seeking behaviour.<sup>8</sup> Another complication lies in the fact that it is not quite clear where in Kant we should look for a genuine heuristics: in the passages dealing with the regulative usage of ideas, or in his discussion of the reflective employment of the power of judgment?<sup>9</sup> There indeed exists a close link between Kant's discussion of regulative ideas, and the principles governing reflective judgement;<sup>10</sup> however, it is far from evident how the third *Critique's* focus upon aesthetic and organic phenomena fits into the framework of the dialectic of the first *Critique*.

The conditions that need to be fulfilled in order to allow for the *seeking* and *finding* of knowledge have been discussed rather extensively in Kant's time. Kant himself makes a difference between "discovering" and "inventing" ("*entdecken*" and "*erfinden*") in his *Anthropology* (§§ 56–57, Ak. 7, pp. 223–224). The process of inventing is characterized by Kant as being based upon a faculty of "*judging in advance (iudicii praevis)*" (Ak. 7, p. 223).<sup>11</sup> The German original, "*vorläufig zu urteilen*", aptly conveys the complexity of the move that Kant intends to make here. "*Vorläufig*" does not only have a temporal connotation (in the sense of: to cast a judgment that takes the lead, that runs ahead – which would be the precise etymology of "*vorläufig*" – in our cognitive endeavours), but also an epistemic dimension because "*vorläufig*" can equally well be rendered as "preliminary", i. e. as a judgment that needs to await confirmation. The German text contains a similar ambiguity when Kant asks for principles or for a rule-based "instruction" for seeking "the hidden constitution of natural things":<sup>12</sup> While the German phrase, "*wie man mit Glück suchen solle*", may indeed be translated as "how one should search successfully" (as does the translation of Kant's *Anthropology* by

---

**8** An example: Next to the ideas of God, freedom and immortality, and the psychological and cosmological ideas, Kant also discusses idealized concepts of pure substances as having the function of ideas. This point is emphasized, for instance, by Grier 2001, pp. 265, 267.

**9** Buchenau 2013, pp. 193–225, discusses Kant's critical stance with respect to Wolffian traditions in placing an "*ars inveniendi*" at the propaedeutic beginnings of philosophy and science. When related to regulative ideas or reflective judgment, however, a heuristics occupies a rather different systematic place than that ascribed to it in the Kant-Wolff debates that Buchenau analyses.

**10** See, e.g., Guyer 2005, pp. 12–37; Neiman 1994, pp. 84–85.

**11** Kant's procedures for cognitively referring to future knowledge deserve close attention here. One example: In the *Anthropology*, Kant discusses "*Ahndung*" and "*Vorhererwartung*", with their Latin equivalents of "*praesensio*" and "*praesagatio*" in a chapter on the "*Vorhersehungsvermögen*" (Ak. 7, p. 187), clearly emphasizing that all of these notions make statements about a future that we can never fully predict or determine via these faculties.

**12** All further quotes in this paragraph in Ak. 7, p. 223. – On the role of the concept "instruction" in these contexts, see Briesen 2013, p. 10.

Robert B. Loudon, Ak. 7, p. 223), this fails to capture the element of luck that the German wording also transports. What Kant aims at are principles for seeking successfully while not giving us any really explicit instruction for what we have to do in this process and what we may expect: These principles are not supposed to give us any guarantee that we are indeed going to find anything; luck remains possible and necessary for making discoveries. This is nicely captured in the phrase “how we should scent these out”, “*wie man diese* [referring to the principles that are asked for here] *auswittern soll*”. The only guidance that we are going to get here, is given by “*Anzeigen*”/“indications” (inadequately rendered as “certain modes of procedure”), or an “advice for inquiry” (“*Anweisung zum Nachforschen*”), which in fact introduces a twofold distancing from a direct determination of the process or result of inquiry since neither “advice” nor “inquiry” allows for determinate claims about the objects of this inquiry. Note also that all these terms – explicitly in the “*iudicium praeivium*”, but also in the various terms for deictic gestures without a clear aim – make claims upon future knowledge without giving predictions about this knowledge.

These phrases are surprising in their openness, both epistemically and with respect to the contents of what can thus be “scented out”. They only *indicate* that we should investigate, not what we might thereby get, or which structures in the realm of objects will be found beyond those imposed by our way of investigating them. Since this is nothing but an indication, it is not determined in concrete detail how this investigation has to proceed; Kant remains very open also on the level of describing the concrete procedures regarding “how” we have to proceed.

The status of Kant’s heuristic methodology becomes clearer when compared with what is probably this period’s most explicit discussion of a heuristics for finding, discovering, and inventing in two strongly overlapping papers by Salomon Maimon from 1795.<sup>13</sup> This also helps to relate Kant’s methodological considerations to traditions of rationalist and empiricist thinking. Maimon, a self-fashioned “rational dogmatist and empirical sceptic”,<sup>14</sup> is adopting a rationalist strategy by looking for a “general *theory of inventions*” that he phrases in terms of “secure methods” that determine how the manifold of cognitions that we already have can yield premises for further conclusions, be these already

---

<sup>13</sup> Maimon 1795a; see also, content-wise equivalent to the text just quoted: Maimon 1795b. In discussing the role of genius, Maimon takes up issues from Kant’s third *Critique*. – On Maimon’s heuristics, see van Zantwijk 2009. Interestingly, Maimon describes Kant as being more of a rationalist than even Leibniz (because Kant seeks for deeper foundations for the principle of sufficient reason than Leibniz who took this principle via induction from experience; Maimon 1792, p. 45).

<sup>14</sup> Freudenthal 2003, p. 15.

given or still unknown.<sup>15</sup> Maimon thus focusses exclusively upon a deductive ordering of cognitions; and he explicitly states that he does not find the slightest traces of a heuristics in Kant's critical philosophy, thereby simply disregarding the methodological remarks that prominently round off all three *Critiques*.<sup>16</sup> Maimon proceeds to distinguish carefully between "finding" and "inventing";<sup>17</sup> both, however, include *a priori* aspects ("finding", in particular, means to relate an attribute, in a *a priori* fashion, to a cognition that is already given as an object<sup>18</sup>). Maimon's own strategy for arriving at a general heuristic methodology (he repeats a number of times that this method must be "secure") relies upon established strategies in mathematics, and in particular emphasizes the various forms of "analysis" that are applied in Euclidean mathematics ("analysis" here used in the older, pre-Kantian sense).

More directly relevant for a Kantian heuristics is Maimon's remark that we need to be certain that what is searched for can indeed be determined by what is already given.<sup>19</sup> Here, too, Maimon uses an example from mathematics, namely the Pythagorean theorem that requires, as a condition for determining the Pythagorean relationship between the hypotenuse and the other two sides in a rectangular triangle, another theorem, namely that two sides of a triangle and the angle between them determine the third side. Maimon thus argues again in terms of a system of theorems; all his illustrations of heuristic procedures refer to deductive relations between propositions, which makes it problematic to see how he can capture the creativity, the unpredictability that is essential for arriving at novel knowledge. Maimon's insistence upon these (deductive) relations between theorems is thus indeed reminiscent of classical rationalist methodologies. One example: Christian Wolff, when discussing the "finding" of theorems ("Lehrsätze"), sketches a methodology that does give a role to experience, but that, nevertheless, works via the operation of conceptual clarification, applied to the concepts involved in the definitions we use, or to what experience has taught us, or to what we know *a priori*.<sup>20</sup>

---

15 Maimon 1795a, p. 2.

16 Maimon 1795a, p. 3.

17 Roughly: In inventing, one creates an entire object anew (as in inventing a novel type of machine); in finding, one adds something to a cognition that one already has, such as in "finding", based upon "three given parts of it", the other parts of a triangle (Maimon 1795a, p. 10).

18 Maimon 1795a, p. 10.

19 Maimon 1795a, p. 8.

20 Wolff 1713, p. 71. – On Wolffian methodology, with reference to Kant and in particular to topics related to the *Critique of the Power of Judgment*, see van den Berg 2014, ch. 2.7.



When turning to Kant at this point, the first thing to note is that the semantic field of seeking and finding is prominently present in his writings at various systematic places: In the Appendix to the Transcendental Dialectic of the *Critique of Pure Reason*, in the introduction to the *Critique of the Power of Judgment*, in the *Anthropology*. Compared with Maimon and Wolff, however, what directly strikes the reader is the variety of very open epistemic terms that Kant adopts, and that very clearly cannot aspire to give us a “secure” methodology: “guessing”, “conjecturing”, “hoping” are all that one can aim for. This holds for both directions of investigation, for seeking unity among the various individual results of the process of acquiring knowledge, but also for producing more such results. Kant’s methodology is based neither upon the clarification of concepts, nor upon deductively ordered hierarchies.

This point is very clearly stated in the strong phrase of a “necessary” law that requires us to seek unity in nature (A 651/B 679). This law is necessary, and as such it cannot be derived from experience. Still, content-wise this law gives us nothing but the necessity to (be able to) seek; no further indication is given as to how this search may be successfully performed. Nevertheless, this law is saddled up with particularly strong implications: “without it we would have no reason, and without that, no coherent use of the understanding, and, lacking that, no sufficient mark of empirical truth”. Kant wants to convince us that such a law, devoid of specific content, can have these far-reaching implications. As will be indicated below in section 3, it is indeed important for Kant to arrive at methodological principles that are “indeterminate”. A viable strategy for defending these far-reaching claims might consist in emphasizing that even the most everyday practices we adopt in acquiring knowledge, such as the formation of concepts, already include a seeking for unity, and thus require the concepts of reason. This strategy has implications for the notions of “unity” and of “system”: These concepts, then, enter into our cognitive practices on all levels. This omnipresence of reason-guided procedures could make it clear that reason does not enter our cognitive practices as a later, final, step, but rather is immanent in cognition from its very beginning.

The semantics of seeking, together with related, open-ended concepts, is highly prominent in the Appendix to the Transcendental Dialectic of the first *Critique*. Some examples: “we question [*befragen*] nature according to these ideas” (A 645/B 673), where idealized concepts of pure substance provide Kant with an example that, interestingly, drops the typical concepts discussed in the main text of the Transcendental Dialectic. These open terms work indeed downwards as



well as upwards.<sup>21</sup> We have, necessarily, to “conjecture” (A 652/B 680) that there is unity in the apparently infinite diversity of things in nature. This implies that the idea of unity itself only enters the methodology of investigating nature as a conjecture, not as a necessary given of reason. We necessarily have to make assumptions, such as the conjectures aiming at unity among the empirical cognitions referring to natural objects; but these assumptions remain undetermined in terms of content and in the sense that they do not give us guarantee that we can arrive at this unity.<sup>22</sup> Likewise, we need to argue by conjecturing when we seek for further specifications in nature (A 657/B 685). None of these directions, upwards or downwards, is epistemically privileged here. Kant uses the rather conspicuous term “hope” to describe the strength of the conviction that these methodological practices carry. In criticizing the “empirical minds”, he charges them with constantly seeking to “split nature into so much manifoldness that one would almost give up the hope of judging its appearances to general principles” (A 655/B 683). Though used here in a critical argument, this also implies that the positive strategy of combining both universality and specification cannot give us more than a “hope” that nature can be judged according to general principles.<sup>23</sup> We see here the same move that has been hinted at earlier: Hope, in the sense of a positive attitude towards the future, does not remain restricted to the hope of happiness in a future life, but enters into our theoretical practices as well, and is used regularly in these contexts.<sup>24</sup> Again, this notion is embedded in an entire field of related concepts; an example is the notion of reason’s having “*Zutrauen zu sich selbst*”, “confidence in itself” (A 795/B 823) in the opening sentences of the chapter on the “Canon of Pure Reason” in Kant’s *Transcendental Doctrine of Method*,<sup>25</sup> where this notion precisely marks the point of transition between a negative and a more positive usage of reason.

The openness of these procedures is repeatedly indicated by Kant himself. “Seeking” must not be understood as explicitly guiding our cognitive processes:

---

**21** See also Anderson 2015, p. 364, on the mutual dependence of higher- and lower-order concepts.

**22** Note the parallel phrase in A 653/B 681, where Kant says we conjecture the existence of a common principle underlying the variety of salts in chemistry.

**23** Moses Mendelssohn illustrates that this conceptual field is also related to the 18th-century discussions of probability (see Mendelssohn 2009, p. 159 on “hope” in the context of probabilistic processes); “expectation” is another term that gets important in these contexts. See the comprehensive analysis of the probability-discourse of this period in Daston 1988.

**24** On the notion of hope in Kant, see Beyleveld/Ziche 2015.

**25** See also Ak. 2, pp. 118, 148. – See also Briesen 2013, p. 29, for a link between “trust” in principles, independently of empirical or a-priorical reasons, and Crispin Wright’s notion of cognitive entitlements.

“we are given nothing more than a general indication that we are to seek for it” (A 661/B 689), the necessity to seek serves “only to indicate the procedure” (A 665/B 693), and a similar phrase gives the very last and thereby strongly highlighted words of the chapter on the Regulative Use of Ideas of Reason: Regulative principles can only serve to “point [...] the way toward systematic unity (“zur systematischen Einheit den Weg vorzuzeichnen”).<sup>26</sup> Related terms are used in the concrete examples of the conic sections as guiding our investigations into planetary motions, where we are supposed, and allowed, to “guess” the shape of orbits (A 662/B 690);<sup>27</sup> and the term “Glück”, in its double meaning of both “luck” and “success”, returns in Kant’s description of what we may expect from the use of heuristic principles (A 663/B 691).

The same semantic field is abundantly present in the First Introduction to the *Critique of Judgement*,<sup>28</sup> here adding the notion of “expectation” (“well-

---

**26** Here, the translation is even sharper than the original. “Vorzeichnen” may create the association of a sketch, of an outline that already contains quite some concrete detail; “pointing” takes up the openness and future-directedness that seem so important for Kant.

**27** This passage is remarkable in a number of respects. One might think that the finite number of forms of conic sections allows for more than guesswork; after all, couldn’t we just take one of the conic section after the other, and try whether they fit the purpose of mathematically describing the paths of celestial bodies? Note also that already in Kepler and Newton, the conic sections were derived from the most fundamental law/laws governing planetary motion. In a Newtonian gravitational force field, we can *know* that bodies move along conic sections. So why does Kant invoke the extremely loose and indeterminate term “guess” here? Kant himself is, of course, completely aware of these implications of Newton’s law of gravitation; what he does in this passage, is describe an *empiricist* procedure of arriving at a most general laws for all planetary motions, and what he intends to show is that even in the empiricist strategy, we need assumptions as to continuity (here, it is pretty transparent what “continuity” can mean since we work within the framework of geometry). – See Friedman 2013, pp. 558 – 559; Friedman reads this passage as presenting a reconstruction of Kepler’s route towards his discovery of the laws of planetary motion. – Another complication is introduced in the *Opus Postumum* (Ak. 21, p. 363): a complete specification of moving forces, under the laws of motion, requires us to follow the order of the categories. Other than the model discussed in section 4, this seems to imply that there is a basic level at which completeness is achieved.

**28** Ak. 20, p. 204 n: “guideline” [*Leitfaden*], “seek”, “we simply *assume* in it”, “a principle for the judging and investigation [*Nachforschung*] of nature”; “investigation” remains a key term here. See also Ak. 20, p. 211: “*concepts* can be found”. Other examples: A 826–827/B 854–855: “clue”, “*Leitfaden*”, elsewhere translated as “guideline”; “having a guide” [*Leitung*]. Interestingly, according to Grimm’s Wörterbuch, the term “*Leitung*” has connotations hinting at the continuous conductive force that, for instance, a pipe exerts upon a liquid streaming through it. In the absence of a clear step-by-step methodology in Kant, this latter type of imagery is not really adequate in his text. – The prominence, and moreover: the unexpected prominence of these terms is emphasized by Buchdahl 1969, p. 505 n.

grounded expectation of its [referring to “reflection”, in what grammatically is not a fully transparent phrase] agreement with nature”, Ak. 20, p. 212) to that of “hope” (“For it is an open question how one could hope to arrive at empirical concepts of that which is common to the different natural forms”, Ak. 20, p. 313).<sup>29</sup> Finally, these terms return in the closing sections of the first *Critique*, devoted to the methodology of pure reason. Remarkable here is that Kant even includes methodologically highly problematic terms such as the rather mystical-sounding “*ahnden*” (“have a presentiment”, A 785/B 813)<sup>30</sup> into the list of faculties or modes of cognition that one may, confidently, employ. It is in this section that the notion of “hope” is used primarily with respect to the happiness that we may hope for in a future life, without thereby, however, severing the ties to a more theoretical-epistemic usage of this term. The search for principles that can regulate the finding of novel knowledge thus reaches beyond the demarcations that seem to set apart theoretical and practical philosophy, or the usage of reason, understanding, and the power of judgment. This has been noted repeatedly in the literature. What will be shown in the following section, is how deeply the necessity of opening up the structural framework of the first *Critique* is inscribed already into this text itself.

### 3 Horizons and mirrors: Internalizing the regulative function

Kant gives us, in a number of places in the third and in the first *Critique*, lists of principles for the regulative employment of ideas and for the reflective use of the power of judgement. For the function of the regulative ideas, he sticks to a triadic presentation, and names the principles of “*homogeneity*”, of “*specification*”, and of the “*continuity of forms*” (A 658/B 686).<sup>31</sup> The first two principles refer to what we may call the upward and the downward movement in the dynamics of concepts: It is possible to bring the “manifold under higher genera”, by looking at

---

<sup>29</sup> This passage is directed against a style of research that everywhere looks for more and more fine-grained distinctions. This style is legitimate, it is, in fact, implied by the principles of the regulative employment of reason and of judgment in its reflective function. Still, it cannot stay on its own; it needs to be counterbalanced by a hope that we still may maintain a form of unity, and that the realms of reality and of concepts do not fall apart into atomistic heaps of unrelated items. Again, however, all we can claim here is a hope that this is so.

<sup>30</sup> See also above, n. 10.

<sup>31</sup> Other examples for such lists: A 657/B 685: “*sameness of kind*”, “*variety*” and “*affinity of all concepts*”; A 662/B 690; A 662/B 690; Ak. 20, pp. 209–210.

“*sameness of kind*”, and on the other hand one may subdivide “what is same in kind under lower species”. Moreover, “to complete the systematic unity”, we may and need to assume that there is “a continuous transition from every species to every other through a graduated increase of varieties” (A 657–658/B 785–786). As is so frequently the case with Kant, these principles cohere. The third principle, as summing up the other two, states that, starting from whatever concept we may take, we can always work both upwards and downwards, and never need to assume discontinuities in this progress.<sup>32</sup>

Kant relates these principles to other principles that he presents as “scholastic rules” (A 652/B 680) or as “stock formulae” (Ak. 20, p. 210). The original wording for the latter phrase, “*in Schwang gebrachte Formeln*”, has rather negative undertones. Kant clearly wants to alert us to the fact that these formulae are not yet completely understood. He frequently presents these principles under Latin titles that are, however, less standardly established than he suggests, and that are strongly reminiscent of rationalist ways of presenting principles of reasoning and of scientific practice: “law of the *continuum specierum (formarum logicarum)*” (A 660/B 688), “*entium varietates non temere esse minuendas*” (A 656/B 684), “*non datur vacuum formarum*”, “*datur continuum formarum*” (A 659/B 687).<sup>33</sup> The First Introduction to the third *Critique* (Ak. 20, pp. 209–210) presents an entire list of such “stock formulae”, here keyed towards analyzing nature: “nature takes the shortest route<sup>34</sup> – *she does nothing in vain – she makes no leaps in the manifold of forms (continuum formarum) – she is rich in species but sparing with genera*, etc.” Kant is very explicit in stating that these principles still await an adequate characterization of their role, and that he is going to provide this characterization by showing them to be “nothing other than this very same transcendental expression of the power of judgment in establishing a principle for experience as a system” (Ak. 20, p. 210), where this principle had already been stated in terms of “unity” and “affinity of particular laws” (Ak. 20, p. 209). At the end of the chapter on the regulative use of ideas, Kant returns to rationalist traditions and discusses the “*ladder of continuity*” as introduced by Leibniz and further refined by Charles Bonnet (A 668/B 696), again with an interestingly ambiguous characterization: This principle is described as having been “*durch Bonnet trefflich aufgestutzt[...]*”; the English rendering

---

<sup>32</sup> Note that this does not require that we find real objects that stand in relations of continuous series of variations; see also Guyer 2005, p. 19.

<sup>33</sup> For the phrase of a “*vacuum formarum*”, see Meier-Oeser 2001; on Kant’s rich lists of principles, see also Grier 2001, pp. 267–268.

<sup>34</sup> An alternative phrase for Maupertuis’ principle of least action; on Maupertuis, see, Ak. 2, p. 98.

by Guyer and Wood who translate “*aufgestutzt*” by “excellently supported”, fails to convey the critical undertones that are hinted at in “*aufstutzen*”, which might better be translated as “giving a cut according to fashion”.

Some remarks on these lists and the terminology that Kant employs here are required directly. These principles are introduced in order to fill in the demand for systematic unity. While some of them can refer to discovering and unifying *laws* for natural processes, this does not hold for all of them: The principle that nature is “rich in species but sparing with genera” and the ladder of continuity rather make claims about continuous hierarchies of *concepts*.<sup>35</sup> That Kant is not restricted to thinking in terms of laws here is important for another key term in Kant's philosophy, that of “system”. Clearly, “system” here is not thought on the model of deductively structured systems of theorems, but neither is it clear that it follows the third *Critique's* model of an organic interaction of parts and wholes. In particular, Kant is completely explicit that we do not find continuity everywhere in the reality of nature; biological species, for instance, are discontinuous.<sup>36</sup> Kant makes it clear, thus, that these methodological principles can indeed be empirically falsified; they can be falsified not as principles, to be sure, but in the predictions about real objects that can be derived from them.

Kant works these issues out by giving us an image. Even if it is clearly impossible to point out an object that corresponds to the unity that we are asked to search for via ideas, Kant still sketches a way to make the function of ideas “palpable” (“*sinnlich*”). This indirect form of representation cannot be achieved by giving us a representation of an object, or of a state of affairs, but it represents the ordering processes that ideas impose upon the realm of concepts. The image that Kant uses, that of *horizons* of concepts, is known from rationalist traditions; it is prominently employed in Georg Friedrich Meier's logic that Kant used in his lectures.<sup>37</sup> It also is related to the operation of “orienting” that Kant discusses repeatedly. Already in his 1786 paper on *What does it mean to orient oneself in*

---

35 Briesen 2013 relates the Kantian programme of systematization not only to concepts, but also to “beliefs”. This implies that relations of systematization include “inferential connections” (p. 6). Given Kant's critical attitude with respect to the rationalist programme of a strictly deductive structuring of cognitive projects, this is not necessarily convincing. Similarly, Margaret Morrison requires “coherence as well as deductive relationships among its members” for a “properly unified system” (Morrison 1989, p. 161).

36 But see Toepfer 2016, on the importance of Kant for thinking about (organic) nature in terms of a rich variety of species.

37 Cf. Pozzo 2005. Pozzo shows that the German phrase “*Gesichtskreis*”/“circle of vision” is used by Wolff as a translation of “horizon” (p. 198); he also sketches the role of this concept in Leibniz (*ibid.*). In Meier's case, this notion is directly related to the task of determining what we cannot (and need not) know (p. 200).

*thinking?*, “orientation” does not mean that one should aim at an orienting goal; rather, “in the proper meaning of the word, to *orient* oneself means to use a given direction [...] in order to find the others, literally<sup>38</sup>, to find the *sunrise*” (Ak. 8, p. 134). In his analysis of the progress of metaphysics, Kant chides the “Leibniz-Wolfian philosophy” for assuming that we may have a “compass to guide” us for orienting ourselves on the basis of the principle of sufficient reason in addition to the Aristotelian principle of contradiction (Ak. 20, p. 277). His criticism is based upon his standard argument that Leibniz, Wolff, and Aristotle remain within the realm of logic, and thus cannot contribute to the progress of metaphysics. We may already draw a first conclusion: Orientation for Kant is not so much governed by pointing towards an ideal or infinitely distant point, but is rather concerned with ordering the entire field we are moving in by both unifying and subdividing it.

Precisely this structure also governs Kant’s explanation of what the “horizon” of concepts is.<sup>39</sup> Kant gives this explanation in order to palpably represent the regulative use of reason as “directing the understanding towards a certain goal respecting which the lines of direction of all its rules converge at one point” (A 644/B 672). The temptation is strong to view this point as an ideal focal point, a “*focus imaginarius*” (ibid.) in infinity. Kant however, gives a rather different exegesis of his image.

Kant’s starting point in the relevant passage (A 658/B 686) is that each and every concept has a “horizon”.<sup>40</sup> “Horizon” here does not refer to an outline, the circumference of a circle of vision, but to the totality of points (if we return from the image to what it is supposed to visualize: a totality of concepts) contained within this circle; a horizon is “a multiplicity of things that can be represented and surveyed, as it were, from it”, namely from this horizon. Since Kant argues here for the possibility of iterative hierarchical subsumptions, “things” cannot be

---

**38** The German text has the term “*Weltgegend*”, i.e. “point on the compass”, but this is not a term that directly implies a direction. Rather, “*Weltgegend*” precisely fits the notion of an extended surface within the field of vision that Kant employs in his simile. Similarly, the German “*namentlich*” should rather be translated as “in particular” than as “literally”, emphasizing that in Kant’s explanation, none of the directions or points on the compass is absolutely privileged.

**39** On the notion of a “horizon” see also Kant’s *Logic*, Ak. 9, pp. 40–44. Again, Kant emphasizes the necessity to determine both local/personal and universal (valid for the entire human species and the full extension of our science) horizons. The issue of arriving at a sub-division of conceptual horizons should also become related to that of the logic of disjunctive judgment; on this, see, e.g., Longuenesse 1998, pp. 378–387, Anderson 2015, p. 362.

**40** See also Butts 1984, on the image of a horizon, see pp. 217–222 on the idea of a “universal horizon” as a necessary condition for the systematization of conceptual horizons.

taken to refer to real things in the world. Rather, he discusses relations between concepts here: What falls within a “circle of vision”, i.e. is visible from the “standpoint of an observer”, is governed by a concept.<sup>41</sup> Kant claims that within a given horizon, an infinity of points can be found, and that it is necessary that we can find infinitely many points. Again, this needs to be understood as a claim about concepts, not about things: It is not necessary that a concept governs an infinity of things, but the conceptual sub-divisions need to be infinitely refinable. Note that, again, this statement to the effect that we must be able to find an infinity of concepts does not imply that we necessarily have an infinity of points *within* this horizon; infinity can also be achieved via downward and upward processes of unifying and subdividing horizons. Since a concept is always characterized by a form of generality, concepts can always be further specified into yet further, subordinated, concepts. Each of the subordinate concepts has its own horizon, and nowhere do we arrive at simple points. The other direction is equally viable. Several horizons can be unified under a more general concept that brings them together into one horizon. In this hierarchical direction, the process of subsuming horizons under a most comprehensive horizon, however, is limited by the most general concept of an absolute totality.<sup>42</sup>

Each and every point in this conceptual space can, in this description of the functioning of concepts, become a centre of its own. Concepts, and empirical cognitions, are not rigidly fixed, but need to enter into a dynamics of seeking and finding. The operation of ordering is the same on all levels. Note that this implies a problem in so far as this reading of Kant's image suggests that within one conceptual horizon, one concept is singled out as unifying this horizon, while the other concepts become subordinated without an inherent necessity

---

**41** This deserves further discussion: Why not think of things falling under a concept; trees falling under “tree”? On the next level of subdivision, the trees would then be specified by introducing yet more specific concepts. Problems arise when we take the claim to an infinity of points seriously. While this may be guaranteed on the level of concepts, it is not clear at all how this should work for things. Also, things cannot subsume other things under themselves: The operation of subsumption requires concepts. The strategies for openness and flexibility that Kant introduces, however, make such considerations largely superfluous.

**42** In reflection 3095 (Ak. 16, pp. 656–657), Kant takes up this imagery. He considers concepts as “surfaces” (“*Flächen*”) within which the subordinated concepts themselves are surfaces. Does the surface consist of surfaces, or of points? In the former case, a “*lex continui*” holds. This again supports a hierarchical structure in which a transition to more and more specific concepts nowhere gets beyond the conceptual. In the same reflection, Kant discusses the same issue with respect to real things. On this level, a “*continuum formarum*” presupposes the possibility to continuously go over from one form to another, which Kant spells out in terms of continuous causal transitions (each species is only possible by reason of all the others, taken together).



to single out a particular concept as the unifying one. This is taken up in another imagistic device that Kant adds to the image of conceptual horizons, and that explicitly takes up the problem of representing the status of regulative ideas. What is striking is that he quite naturally localizes these ideas “outside the bounds of possible experience” (A 644/B 672), while at the same time describing this position as a “deception” that he illustrates via the image of a mirror. Seeing an object in a mirror deceives us in the sense that the light rays hitting our eyes appear, but only appear, to come from an object behind the mirror, and thus from a location that this object occupies only via a deception or illusion. The point where the lines of vision converge, is, thus, an imaginary point, a “*focus imaginarius*”: In looking into a mirror, we experience a “deception, as if these lines of direction were shot out from an object lying outside the field of possible empirical cognition (just as objects are seen behind the surface of a mirror)”.<sup>43</sup>

This passage is remarkable, and deserves closer attention than has been given to it in the literature. Kant’s use of the mirror-image is striking. It may be thought to be about extending the scope of what we can perceive, but that is not the key function of a mirror: A mirror can show what lies in my back, but I just need to turn around to view it just as plainly. So, a mirror can only be said to extend my perception by ordering things differently. Kant focusses on a different aspect. Mirrors give the cognizing being a place in an ordering that is directed by or towards objects that appear to be at a place at which they not really are. In particular, an object can occupy a focal position without actually occupying this place.<sup>44</sup> An object that lies outside my ordinary circle of vision can become visible in the mirror, at a position that is deceptively located in a place where there is no object at all – but, despite its appearing to extend my perception, it still can be a completely ordinary object within the “circle of vision” of the mirror. What makes this image so striking is that Kant seems to allow here for each and any concept not only to form the organizing principle of ordering concepts by forming horizons, but also to occupy the role of an

---

<sup>43</sup> For a discussion of the image of the “*focus imaginarius*” in strongly physiological terms, see Butts 1986, pp. 191–192 n. On this passage, see also Heßbrüggen-Walter 2001.

<sup>44</sup> Since we remain within the scope of concepts, and never find absolutely first points, the important and intense discussion on Kant’s being a conceptualist or non-conceptualist does not directly affect my considerations (for an overview, see McLear 2014). – For a Deleuzian take on “immanent” ideas in Kant (though not discussing the passage on horizons and deceptively immanent foci), see Smith 2006.

idea beyond the realm of empirical cognition.<sup>45</sup> The operation he has in mind is that of a “projection”<sup>46</sup> where, again, every concept can be thus projected.

The details of Kant's imagery pose a number of problems. Most importantly, Kant's mirror- and horizon-image operate both with hierarchical structures and with a horizontal form of ordering, while not taking recourse to *a priori* concepts such as the categories. He seems to allow for ordering schemes that are not governed by a pre-given set of concepts (see also the openness in his lists of ordering concepts and principles), and in which conceptual structures and structures holding among things in the world are, at a certain level, necessarily related, but where things do not necessarily fill in the conceptual structures one-to-one.<sup>47</sup> This becomes evident in his discussion of Leibniz'/Bonnet's “ladder of continuity”. Kant is explicit about his conviction that species in nature can never be fully continuous (A 668/B 696). Still, the Bonnetian ladder, though not really helpful in practice as a determinate pattern because of the enormous distances that exist between the rungs of this ladder, can be turned into a methodological notion, into a “method for seeking out order in nature in accord with such a principle”. What Kant, then, does is systematically turn these (rationalist) notions of an existing order in nature into methodological principles.

## 4 Summary: Necessary indeterminacy

Kant states repeatedly that the principles involved in the regulative use of reason and in the reflective employment of the power of judgment, are “indetermi-

---

**45** A rather different reading of this passage in Goldman 2012, pp. 182–184; Goldman takes as his cue a reading of the image of a mirror as claiming that the “object only appears to stand beyond the mirror, but it really lies outside our field of vision” (p. 183). My problem with this reading is that the imaginary character of the mirror image does not only apply to objects “outside” my field of vision, but also to objects within this field (or at least potentially within this field), but reflected in the mirror. Also, what does it mean that an object “really” lies outside this field? The convergent lines in a mirror do not relate to a “real” location of an object. See also Grier 2001, pp. 287–288; she also relates the “objects behind our backs” to the ideas of reason, because we cannot normally perceive them. Again, this does not do justice to the procedure of constructing an imaginary focus in the mirror; and the invisibility of the objects in my back does not seem to be radical enough to account for the status of ideas.

**46** This term is used prominently in A 647/B 675; see also Kitcher 1986.

**47** Anderson 2015, p. 361, states that the “system of empirical concepts” “determines the content of concepts in that a concept has its content in virtue of occupying a definite node in that network” – this reading, however, does not agree with the enormous openness and flexibility of Kant's systematization of horizons of concepts.

nate”;<sup>48</sup> they impose minimal structure, but also a structure that is omnipresent. This is directly plausible if these principles are understood as demanding that we have to be able to form concepts everywhere, concepts both more general – up to that of absolute totality – and more specific, and if we want to do innovative research by adopting these conceptual practices. It is important to see that the principle that requires us to seek for ever more specific concepts is stronger than any claim that we can make with respect to real things: The “*law of specification*” “plainly does not demand an actual *infinity* in regard to the varieties of things that can become our objects – for the logical principle asserting the *indeterminacy* of the logical sphere in regard to possible division would give no occasion for that” – it may always be possible that things do not allow for the ordering operations that the dynamics of concepts imposes. Still, the law “does impose on the understanding the demand to seek” ever more specific varieties (A 656/B 684). In other words: The claims Kant makes with respect to the regulation of our seeking behaviour are stronger than those that refer to objects, thus again underlining the relevance of the process of seeking for Kant, and his conviction that this process itself, its openness notwithstanding, must be brought under principles.

Three summarizing remarks are relevant in order to properly place the implications that this reading of Kant generates. First, again, a rather surprising picture of the role of ideas starts to emerge. Kant takes seriously the challenge to give the concepts of reason, the ideas, a role in guiding our cognitive behaviour. This, however, implies that not only the few highest-level concepts (such as, for the realm of theoretical philosophy, that of the unity of nature) can be taken as guidelines; we need in addition a foundation for assuming with confidence that the more local and more everyday practices of cognition contribute to this unity. In his images of the horizons of concepts and of the projected ideal positions of certain concepts, he tries to give precisely this guarantee. Note that this implies that not only the approaches of the first and the third *Critique*, but more specifically also the determining and the reflective use of the power of judgment are brought very closely together.<sup>49</sup>

Secondly, Kant puts himself in an awkward position in so far as he has to balance, as has been remarked upon frequently, an open methodology with a de-

---

<sup>48</sup> E.g. A 680/B 708, again with a Latin equivalent (“*principium vagum*”); Ak. 20, p. 214. – See also O’Shea 1997, p. 218 on “this crucial but relatively neglected notion of an a priori indeterminate objective validity”.

<sup>49</sup> This has been emphasized, prominently, by Guyer 2005, p. 13; Friedman 1992, p. 262: “the apparently paradoxical idea of an intersection between the constitutive and regulative domains” “is nonetheless an unavoidable problem for the critical philosophy”.

mand for strong principles. We find a number of complex and intricate phrases in which he does precisely that. His insistence on a necessary law that specifies nothing but the necessity to be able to seek is an example; another is the – rather Hegelian-sounding – phrase that reason may orient itself in thinking “solely through reason’s own need”, a “*Recht des Bedürfnisses, sich zu orientieren*” (Ak. 8, p. 137). The “need” – which is a need precisely because reason “may not presume to know through objective grounds” – itself becomes the means by which reason finds orientation.<sup>50</sup> Another way of putting this indirect guiding function of reason, is captured in the characterization of Kant’s methodological considerations as “meta-theoretical”, i. e. as guiding principles that only govern the discovery of further methodological principles, and thus only latch unto reality via a number of steps.<sup>51</sup>

Let us, thirdly, comment upon the implications for larger historiographical issues. The methodologies that have been sketched here have to be understood as being Kant’s response to a problem that he states at the very end of the first *Critique*: The method that he himself intends to adopt, is neither “dogmatic” nor “sceptical”, follows neither Wolff nor Hume; still, he aims for a “scientific” method (A 856/B 884). His own method, the “critical” method, is named as a third option besides those of Wolff and Hume, and it should now be clear how it relates to these methods. It is non-dogmatic in its openness and in its distance from making explicit predictive claims; it is non-sceptical even in a double sense, by allowing for hope and confidence, and by implanting confident cognition-generating procedures everywhere into our cognitive practices.

The relevant passages in the section on the History of Pure Reason are terse and overly compact; the terminology is not yet settled (how is a “dogmatic” method related to the “noologists” theory of the origin of pure cognitions, and how do both relate to the “intellectual philosophers” tenets concerning the object of rational cognition [A 852–856/B 880–884]?), and Kant does not tell us explicitly how his own critical approach relates to other types of method.<sup>52</sup>

---

50 Cf. a number of closely related phrases in the literature: Pippin 1979, p. 15: “It is the subjective nature of this demand or ‘need’ for unity which, while it reveals how deeply connected Kant’s version of empirical knowledge is with his theory of reflective judgment”; Kitcher 1986, p. 207: “attribute to the search for unity some kind of ‘objective validity’”; Longuenesse 1998, pp. 272, 395 on the role of an “*effort to form judgments*” in Kant; Buchdahl 1969, p. 506: “reason is regarded, not as *assuming* (‘dogmatically’) *the existence* of a unity, but as something ‘which [itself] *requires us to seek* for this unity’.”

51 See, e.g., Krausser 1988.

52 One difficulty: When Kant says that those who adhere to a “scientific” method “have the choice” (A 856/B 884) between a dogmatic and a sceptical method, this may mean, as stated in the English translation, that these are the currently available options (in this way he deals

It is remarkable to see that the concepts that Kant adopts in his open methodology are featuring prominently precisely in the closing sections of the first *Critique*. Taken together, this leads to the following thesis with respect to Kant's way of relating to empiricism and rationalism. He cannot do so in those very terms (for the simple reason that these were not available in the function they obtained through and after Kant). But he also does not have to argue in terms of bringing together two forms of philosophizing that can be distinguished along a rationalism-empiricism divide: If his open heuristics is indeed central to his philosophy, he can be seen as arguing for a methodology that does not consist of various steps, or has various aspects, empiricist and rationalist ones. He rather aims at a unitary method that may, in a later step, be analyzed in terms of rationalist and empiricist methods, but that is not made up from these methods.<sup>53</sup> This attitude has far-reaching implications. An alternative phrasing of what Kant spells out in the image of conceptual horizons understands the idea of systematic unity in cognition as containing “the conditions for determining *a priori* the place of each part and its relation to the others” (A 645/B 673) – a phrase that is very close to somewhat later innovations in philosophy such as a hermeneutic method in Schleiermacher, or the method of construction in Schelling's philosophy of identity.

## Bibliography

- Kant's works are quoted in the customary fashion, following the *Akademie-Ausgabe* (Ak.) resp. the first/second edition of the *Critique of Pure Reason* (A/B). The translations follow the Cambridge edition of the works of Kant.
- Anderson, R. Lanier (2015): *The Poverty of Conceptual Truth. Kant's Analytic/Synthetic Distinction and the Limits of Metaphysics*. Oxford: Oxford University Press.
- Berg, Hein van den (2014): *Kant on Proper Science. Biology in the Critical Philosophy and the Opus postumum*. Dordrecht: Springer.
- Beyliefeld, Deryck/Ziche, Paul (2015): “Towards a Kantian Phenomenology of Hope”. In: *Ethical Theory and Moral Practice* 18, pp. 927–942.
- Briesen, Jochen (2013): “Is Kant (W)right? – On Kant's Regulative Ideas and Wright's Entitlements”. In: *Kant-Yearbook* 5, pp. 1–32.

---

with the “naturalistic” and “scientific” methods in this very section, A 855/B 883), or that these two methods indeed exhaust the range of options. This will clearly have relevant implications for the status of his own method.

**53** An important follow-up question would be whether these considerations merely apply to the methodology behind empirical cognitions. I would argue that this is not the case; it seems to me that Kant's method of construction can be analyzed in very similar terms, as Schelling has done in his refinement of the method of construction (on this, see Ziche 2011).

- Buchdahl, Gerd (1969): *Metaphysics and the Philosophy of Science. The Classical Origins: Descartes to Kant*. Oxford: Basil Blackwell.
- Buchenau, Stefanie (2013): *The Founding of Aesthetics in the German Enlightenment. The Art of Invention and the Invention of Art*. Cambridge: Cambridge University Press.
- Butts, Robert E. (1984): *Kant and the Double Government Methodology. Supersensibility and Method in Kant's Philosophy of Science*. Dordrecht et al.: Reidel.
- Butts, Robert E. (1986): "The Methodological Structure of Kant's Metaphysics of Science". In: Robert E. Butts: *Kant's Philosophy of Physical Science. Metaphysische Anfangsgründe der Naturwissenschaft 1786–1986*. Dordrecht et al.: Reidel, pp. 163–199.
- Daston, Lorraine (1988): *Classical Probability in the Enlightenment*. Princeton: Princeton University Press.
- Engfer, Hans-Jürgen (1996): *Empirismus vs. Rationalismus? Kritik eines philosophiegeschichtlichen Schemas*. Paderborn et al.: Schöningh.
- Freudenthal, Gideon (2003): "A philosopher between two cultures". In: Gideon Freudenthal (ed.): *Salomon Maimon: Rational Dogmatist, Empirical Sceptic. Critical Assessments*. Dordrecht: Springer, pp. 1–17.
- Friedman, Michael (1992): *Kant and the Exact Sciences*. Cambridge, Mass., London: Harvard University Press.
- Friedman, Michael (2013): *Kant's Construction of Nature. A Reading of the Metaphysical Foundations of Science*. Cambridge: Cambridge University Press.
- Goldman, Avery (2012): *Kant and the Subject of Critique. On the Regulative Role of the Psychological Idea*. Bloomington, Indianapolis: Indiana University Press.
- Gracyk, Theodore A. (1991): "Kant's Doctrine of Heuristics: An Interpretation of the Ideas of Reason". In: *The Modern Schoolman* LXVIII, pp. 191–210.
- Grier, Michelle (2001): *Kant's Doctrine of Transcendental Illusion*. Cambridge: Cambridge University Press.
- Guyer, Paul (2005): *Kant's System of Nature and Freedom. Selected Essays*. Oxford: Clarendon Press.
- Heßbrüggen-Walter, Stefan (2001): "Nur suchen, nicht finden: Kant, Tetens und die Grundkraft der Seele". In: Ralph Schumacher/Rolf-Peter Horstmann/Volker Gerhardt (eds.): *Kant und die Berliner Aufklärung: Akten des IX. Internationalen Kant-Kongresses*. Vol. IV. Berlin: De Gruyter, pp. 368–374.
- Kitcher, Philip (1986): "Projecting the Order of Nature". In: Robert E. Butts (ed.): *Kant's Philosophy of Physical Science. Metaphysische Anfangsgründe der Naturwissenschaft 1786–1986*. Dordrecht, Boston, Lancaster, Tokyo: Reidel, pp. 201–235.
- Krausser, Peter (1988): "On the Antinomies and the Appendix to the Dialectic in Kant's Critique and Philosophy of Science". In: *Synthese* 77, pp. 375–401.
- Longuenesse, Béatrice (1998): *Kant and the Capacity to Judge. Sensibility and Discursivity in the Transcendental Analytic of the Critique of Pure Reason*. Princeton, NJ: Princeton University Press.
- Maimon, Salomon (1792): "Ueber die Progressen der Philosophie veranlaßt durch die Preisfrage der königl. Akademie zu Berlin für das Jahr 1792". In: Salomon Maimon: *Streifereien im Gebiete der Philosophie*. Part 1. Berlin: Wilhelm Vieweg, pp. 1–58.
- Maimon, Salomon (1795a): "Ueber den Gebrauch der Philosophie zur Erweiterung der Erkenntniß". In: *Philosophisches Journal einer Gesellschaft Teutscher Gelehrten* 2, pp. 1–35.

- Maimon, Salomon (1795b): "Das Genie und der methodische Erfinder". In: *Berlinische Monatsschrift* 26, pp. 362–384.
- McLear, Colin (2014): "The Kantian (Non)-conceptualism Debate". In: *Philosophy Compass* 9/11, pp. 769–790.
- Meier-Oeser, Stephan (2001): "Vacuum formarum". In: *Historisches Wörterbuch der Philosophie*. J. Ritter, K. Gründer and G. Gabriel (eds.). Vol. 11. Basel: Schwabe, pp. 530–531.
- Mendelssohn, Moses (2009): "Gedanken von der Wahrscheinlichkeit" [1756]. In: Moses Mendelssohn: *Studienausgabe*. Vol. 1. Darmstadt: Wissenschaftliche Buchgesellschaft, pp. 153–168.
- Morrison, Margaret: "Methodological Rules in Kant's Philosophy of Science". In: *Kant-Studien* 80, pp. 155–171.
- Neiman, Susan (1994): *The Unity of Reason. Rereading Kant*. New York, Oxford: Oxford University Press.
- O'Shea, James R. (1997): "The Needs of Understanding: Kant on Empirical Laws and Regulative Ideas". In: *International Journal of Philosophical Studies* 5, pp. 216–254.
- Peursen, C. A. van (1993): *Ars inveniendi. Filosofie van de inventiviteit van Francis Bacon tot Immanuel Kant*. Kampen: Kok Agora.
- Pippin, Robert B.: "Kant on Empirical Concepts". In: *Studies in the History and Philosophy of Science* 10, pp. 1–19.
- Pozzo, Riccardo (2005): "Prejudices and Horizons: G. F. Meier's *Vernunftlehre* and its Relation to Kant". In: *Journal of the History of Philosophy* 43, pp. 185–202.
- Smith, Daniel W. (2006): "Deleuze, Kant, and the Theory of Immanent Ideas". In: Constantin V. Boundas (ed.): *Deleuze and Philosophy*. Edinburgh: Edinburgh University Press, pp. 43–61.
- Toepfer Georg (2016): "Kants Grundlegung der Ökologie als systemtheoretisch-organismischer Rahmen für Theorien organischer Vielfalt". In: Thomas Kirchhoff/Kristian Köchy (eds.): *Wünschenswerte Vielheit. Diversität als Kategorie, Befund und Norm*. Freiburg, München: Alber, pp. 185–215.
- Vanzo, Alberto (2013): "Kant on Empiricism and Rationalism". In: *History of Philosophy Quarterly* 30, pp. 53–74.
- Vanzo, Alberto (2016): "Empiricism and Rationalism in Nineteenth-Century Histories of Philosophy". In: *Journal of the History of Ideas* 77, pp. 253–282.
- Wolff, Christian (1713): *Vernünfftige Gedancken Von den Kräfften des menschlichen Verstandes Und ihrem Richtigen Gebrauche in Erkänntnis der Wahrheit*. Halle: Renger.
- Zantwijk, Temilo van (2009): *Heuristik und Wahrscheinlichkeit in der logischen Methodenlehre*. Paderborn: mentis.
- Ziche, Paul (2011): "Das System als Medium. Mediales Aufweisen und deduktives Ableiten bei Schelling". In: Christian Danz/Jürgen Stolzenberg (eds.): *System und Systemkritik um 1800*. Hamburg: Felix Meiner, pp. 147–168.