13

Empirical Concept Formation and the Systematic Role of Logical Division

With the articulation of Kant's "master argument" against traditional metaphysics, the main argumentative thread of this book is complete.[1] We have seen how the analytic/synthetic distinction can be given precise logical form and defended, and how the expressive limitations of concept containment doom the research program of Kant's predecessors, which aimed to capture the deep rational structure of the world in a purely conceptual system of metaphysics. Of course, this result leaves many important questions about Kant's theoretical philosophy unanswered—even untouched. Most obviously, there is the question of how the *Critique*'s theory of cognitive synthesis explains the positive possibility of synthetic judgments (thereby providing a new, legitimately scientific basis for metaphysics), and then a raft of questions about the extension of that framework into a systematic doctrine of nature capable of establishing proper foundations for Newtonian science (see Friedman 2013). Those large issues will remain beyond my scope. But there is one strand left hanging from earlier discussions that bears directly on the theory of concepts that underwrote Kant's arguments about analyticity. The hanging thread I have in mind concerns Kant's account of the formation and content of empirical concepts.

Empirical concepts have been the focus of sustained attention in the recent secondary literature, as scholars have deepened their appreciation of Kant's departures from empiricist orthodoxy and worked to come to grips with the conflicting pressures on his position. Conventional wisdom remains remarkably well attached to the Lockean

thought that empirical concepts must be extracted (more or less passively) from sense perceptions via "abstraction." Clearly, however, no such conception can do justice to Kant's view of the matter. As Robert Pippin (1982) noted in his influential discussion, Kant insists that a concept's form, which carries the distinctive structure that makes it a concept in the first place, can never be simply "given" through experience, but must be "made" by active synthesis on the part of the understanding: "The form of a concept, as that of a discursive representation, is always made" (*Logic* § 4, Ak. 9: 93; see also § 102, Ak. 9: 141). Indeed, as Kant's appositional phrase indicates, the idea that concepts are actively constructed by the understanding is (for him) built into their very definition as discursive representations. This commitment in philosophy of logic is linked to one of the more fundamental principles of Kant's overarching critical theory of cognition—viz., that there can be "no intellectual receptivity" (Pippin 1982, 114) of the sort sometimes postulated in the rationalist and Aristotelian traditions, which would be capable of passively abstracting inferentially articulated representations like concepts directly from the nature of things or from the sensible given (see Pippin 1982, 94, 108–19).[2] Still, despite these points about conceptual *form*, it remains Kant's position that the *matter* of empirical concepts, which obviously contributes to their *content*, is "given" through sensible experience and not "made":

> All concepts, *as to matter*, are either *given* (*conceptus dati*) or *made* (*conceptus factitii*). The former are given either *a priori* or *a posteriori*. All concepts that are given empirically or *a posteriori* are called *concepts of experience*. [*Logic* § 4, Ak. 9: 93]

Thus, a genuinely Kantian account of the formation of empirical concepts must do justice to two ideas that stand in apparent tension: *qua* concepts, these representations must acquire their essential structure from the autonomous synthetic activity of the intellect and cannot be simply pulled out of the sensible given, but at the same time, *qua* empirical, their content must remain reliably responsive to (and thus, must in *some* sense still be *derived from*) what *is* (passively) given through sense.[3]

Recent scholars have been sharply divided in their responses to the competing claims of these two ideas, even as they are united in a recognition of their importance for Kant's theory of cognition. Pippin emphasizes the side of intellectual activity in concept formation: "Cognizing is always something we *do* in Kant . . . , we *construct* or make empirical concepts in an imprecise, never completable response to experience" (Pippin 1982, 114). He connects this point to a wider claim about the philosophical aims of Kant's theory of cognition—that it strives to "*prove* that no object could be experienced unless subject to some form of judgmental activity" (Pippin 1982, 94), and thereby to a priori categories based on the forms of judgment. With this

---

[2] These same basic commitments to the discursive character of concepts and the impossibility of intellectual receptivity also help to underwrite Kant's strict distinction in logical kind between concepts and intuitions.

[3] We saw another side of what is basically the same tension in section 2.4, in the form of a potential for slippage between a concept's logical and non-logical extensions.

move, Pippin broaches a more general anti-empiricist interpretation, producing an early version of what has come to be called a "conceptualist" reading of Kant; on this sort of view, Kantianism distinctively claims that the very experience taken as epistemically basic by empiricists is, on the contrary, a cognitive *achievement* that already depends on the highest level concepts of the intellect. More recently, John McDowell (1994, 2009) has defended a different, but quite strong, version of conceptualism, holding that all experience, including even *perceptual intuition* itself, is ineluctably conceptual (or at least implicitly proto-conceptual).[4] Such a thoroughgoing conceptualism has appeared to many to underestimate the consequences of the fundamental *dualism* of Kant's theory of cognition, according to which the role of the understanding and its concepts must be complemented by an independent contribution from sensibility, presumably made by intuitions carrying *non-conceptual* content. Responsive to this appearance, a strand of "non-conceptualist" readings of Kant (Hanna 2001, 2005; Allais 2009; Tolley 2011) has emerged in opposition to the strongly conceptualist interpretations offered by McDowell and others. Finally, sophisticated qualified versions of conceptualism have emerged, which strive to do simultaneous justice to *both* Kant's point about the indispensable role of judgmental structure in experience *and* his continuing commitment to some independent contribution of sensible intuition (see esp. Longuenesse 1998, and 2005, chs 1–3; Ginsborg 1997, 2006a, 2006b, 2006c, 2006d, 2008, 2011).

In my view, there is clear interpretive pressure in both conceptualist and non-conceptualist directions. The resulting controversy has large implications, and participants have worked out carefully qualified positions articulating a complex dialectical landscape. Given the space constraints on this epilogue, I will make no attempt either to address broader questions about Kant's theory of cognition or to do full justice to the positions developed in the literature. Instead, I will focus on the specific mechanism of

---

[4] While McDowell does hold (*contra* the suggestion of the Pippin passages) that there is a sense in which we remain *passive* in sense experience, his version of conceptualism is strong in two respects: 1) he insists that even perceptions are conceptually loaded in some way; and 2) his claim is that they presuppose lower-level *empirical* concepts, and not just abstract metaphysical concepts like Kant's categories. In earlier work in this vein (1994, 1998), McDowell was drawn to the extremely strong claim that only representations with *actually realized* conceptual structure could participate in the "space of reasons" and thereby count as perceptual *evidence* for belief. In more recent work, McDowell (2009, 256–72; Essay 14) defends a more qualified position, according to which (Kantian-style) intuitions need not *actualize* the capacities associated with our specific empirical concepts, but nevertheless remain *implicitly* conceptual because (alluding to A 79/B 104–5) "what gives unity to intuitions is the same function that gives unity to judgments" (McDowell 2009, 264). On McDowell's later view, then, intuitional content is properly described as proto-conceptual, since it makes an intuition's capacity to carry any content at all parasitic on the cognitive subject's possession and actualized use of conceptual capacities associated with the relevant empirical concept. Still, even the qualified view is strongly conceptualist, since there remains *no* aspect of intuitive content that counts as *non*-conceptual, or goes beyond what concepts express altogether: "*every* aspect of the content of an intuition is present in a form in which it is already suitable to *be* the content associated with a discursive capacity [i.e., a concept], if it is not—at least not yet—actually so associated" (McDowell 2009, 264). This last view strikes me as still too strong in denying the possibility of essentially intuitive structure (e.g., space and time) and content (from sensation, see nn. 39, 41, and 45).

empirical concept formation in Kant and treat proposals from the secondary literature only in outline. I begin (section 13.1) by considering some of the main problems that impose constraints on an adequate Kantian theory of concept formation. I will then (section 13.2) offer a preliminary sketch of my own understanding of Kant's view. The proposal does not pretend to settle the conceptualist/non-conceptualist debate in the large; it aims only to outline a workable picture of concept formation that can meet the constraints identified in section 13.1 and make reasonable contact with the Kantian commitments about the logic of concepts and Porphyrian hierarchies that were central to my account of analyticity. My proposal turns out to be a version of the qualified conceptualist stance that has been advanced (in different forms) by Longuenesse and Ginsborg, but while I have been influenced by their work, I do not accept either view in detail.

13.1 Problems and Puzzles: Constraints on a Kantian Theory of Empirical Concept Formation

The view I will sketch in section 13.2 grows out of some problems surrounding Kant's account of how empirical concepts get their content. We just met with one clear *prima facie* question in the neighborhood, since any adequate interpretation must accommodate both Kant's doctrine that conceptual content arises from active synthesis by the understanding and also the obvious point that the content of *empirical* concepts ought to depend on what is delivered (passively) via sense. In addition, several more specific challenges have emerged from recent debates over conceptualism. In so far as Kant's view implicates the activity of the understanding (the faculty of concepts) as a precondition of concept formation, there is a threat that his account might be *circular* (presupposing concepts as a condition of their own formation). Hannah Ginsborg (2006b, 2011) has articulated an important problem about how empirical concepts attain their *generality*, according to Kant. Then there also turns out to be a related issue about how concept formation can be properly *constrained*, or *corrected*, by sensory experience. In addition to these worries about the mechanics of Kantian concept formation, I will briefly mention two further puzzles that arise more particularly for me, given the views defended in earlier chapters. These include a question left over from Chapter 2 about what fixes the identity conditions for concepts, and one about the relation between Porphyrian concept hierarchies and Kant's positive conception of theoretical systematicity from the "Dialectic" Appendix. In this section, I will lay out the nature of these problems so as to identify constraints on an adequate interpretation of Kant's view. Section 13.2 will sketch a proposal for meeting those constraints.

13.1.1 Circularity

Kant's doctrine that the intellect actively makes its concepts rather than passively abstracting them from experience (see *Logic*, Ak. 9: 93, 141) gives rise to an immediate

problem for conceptualist interpretations that emphasize the concept-laden character of perceptual experience. On such readings, Kant's account of empirical concept formation appears to be viciously circular. The strongest versions of conceptualism face the starkest version of the puzzle. The basic motivation of strong conceptualism is the supposition that perceptual experience can play its primary cognitive role of justifying empirical beliefs *only if* it is already conceptually structured.[5] In McDowell's example, my perception of a red cube can serve to justify an empirical belief with the content "That cube is red" only because the perception is a "conceptual shaping of visual consciousness" that is already "so to speak, judgment-shaped"; that is, the perception itself actualizes conceptual capacities associated with the concepts <cube> and <red> and connects them to one another in the distinctive way typical of the judgment (McDowell 2009, 33–4).[6] But now the danger of circularity in empirical concept formation is clear. If my sensory representations cannot even count as experiences (of the sort capable of underwriting concepts) unless they are already "conceptually structured"—for example, through my conceptual capacities to recognize cubes, or the color red—then how could I form the empirical concepts <cube> and <red> in the first place? Perceptions of red and cube-shaped things could not contribute the sort of content that could yield a *concept*—i.e., a representation of *general* properties—unless they already reflected the exercise of those very conceptual capacities. Conceptualism thus threatens to make genuinely empirical concept formation impossible, since the experiences capable of contributing content to any such process presuppose prior possession of the very concepts the process is supposed to generate.

Kant obviously believes that it *is* possible to derive content for empirical concepts from sensory experience: "An empirical concept arises from the senses through comparison of objects of experience and attains through the understanding merely the form of universality. The reality of these concepts rests on actual experience, from which, as to their content, they are drawn" (*Logic* § 3, Ak. 9: 92). Helpfully, moreover, this passage's appeal to the form/matter distinction might be taken to suggest a way out of circularity. As we saw from § 4 of the *Logic*, the *form* of concepts is always made, but empirical concepts are supposed to be given "*as to matter*" (*Logic* § 4, Ak. 9: 93), and the passage traces that matter, or content, to sensory experience. Perhaps, then, Kant could hold that the operation of the understanding, and with it the activation of conceptual capacities, is required only for a concept's *form* (witness: concepts "attain through the understanding merely the form of universality"), whereas the concept's *matter* (i.e., content) could still be derived from unconceptualized sense experience.

---

[5] For discussions of this motivation, see McDowell (1994, 2009) and Ginsborg (2006d).

[6] McDowell's core idea that Kantian intuitions share (at least a good deal of) the logical form of judgment is also the key thought animating his reading of the crucial passage at A 79/B 104–5 that sketches Kant's broad strategy for a deduction of the categories: "The same function that gives unity to the different representations **in a judgment** also gives unity to the mere synthesis of different representations **in an intuition**."

Can the circularity worry be evaded through such a move? There are grounds for doubt, since Kant seems to hold that the process of empirical concept formation requires experiential guidance not only from the side of "matter," but from that of form as well, the presupposition of which would still involve the understanding and its conceptual capacities. For Kant, the form of concepts (viz., generality, or universality) is their defining feature as a logical type of representation distinct from intuition: "With every concept we are to distinguish *matter* and *form*. The matter of concepts is the *object*, their form, *universality*" (*Logic*, § 2, Ak. 9: 91; see also § 1, Ak. 9: 91). It is unsurprising, therefore, when Kant insists that the process of concept formation must generate conceptual form: the characteristic "*acts of the understanding* [that] *constitute a concept*" are responsible for "the origin of concepts as to *mere form*" (*Logic* § 5, Ak. 9: 93). What is crucial, however, is that through these acts, *different* empirical concepts are given *different* forms. Each empirical concept exhibits the logical form of generality in its own specific way, and it is such differences in conceptual form (resting on "*the difference in reflection* in concepts"; *Logic* § 5, Ak. 9: 94) that the theory of empirical concept formation must explain.[7] Thus, what separates one empirical concept from another and constitutes it as the specific concept it is depends not just on the given matter, but also on its particular way of exhibiting the basic form of generality. In so far as such specific differences in conceptual form are "*differences in reflection*" generated "through the understanding" on the strength of prior conceptual capacities, the threat of circularity remains.

At this point, some will find it tempting to take Kant's undoubted commitment to the possibility of experience-based concept formation together with the circularity problem as straightforward evidence against conceptualist readings. Before leaping to that conclusion, though, it is important to note how openly Kant's own official account of empirical concept formation in the *Logic* courts the danger of circularity. The *locus classicus* for the issue is Kant's discussion of "comparison, reflection, and abstraction" in §§ 5–6 of the *Logic*. After indicating (in § 5) that logic can only concern itself with the sort of conceptual form that is (according to § 4) actively made and not given, he turns in § 6 to the particular acts of the understanding responsible for the logical formation of concepts:

The logical *actus* of the understanding, through which concepts are generated as to their form, are:

---

[7] This point is made explicit in the last sentence of the following crucial remark from the first Note to § 5 of the *Logic*:

This *logical* origin of concepts—the origin as to their mere form—consists in reflection, whereby a representation common to several objects (*conceptus communis*) arises, as that form which is required for the power of judgment. Thus in logic *only the difference in reflection* in concepts is considered.   [*Logic* § 5, Ak, 9: 94]

That is, the problem that the theory of concept formation aims to address is how concepts arise, and different concepts must first arise from *differences* in the way the logical act of reflection generates their distinctive *form* as common (general) concepts. These differences of reflection (and consequently, of form) then constitute the logical differences among concepts.

1. *comparison* of representations among one another in relation to the unity of consciousness;
2. *reflection* as to how various representations can be conceived in one consciousness; and finally
3. *abstraction* of everything else in which the given representations differ.   [*Logic* § 6, Ak. 9: 94]

To fill out this abstract characterization, Kant provides an example:

To make concepts out of representations one must thus be able *to compare, to reflect,* and *to abstract,* for these three logical operations of the understanding are the essential and universal conditions for the generation of every concept whatsoever. I see, e.g., a spruce, a willow, and a linden. By first comparing these objects with one another I note that they are different from one another in regard to the trunk, the branches, the leaves, etc.; but next I reflect on that which they have in common among themselves, trunk, branches, and leaves themselves, and I abstract from the quantity, the figure, etc. of these; thus, I acquire the concept of a tree.   [*Logic* §6, Ak. 9: 94–5]

This passage has received substantial attention in the recent literature,[8] but it remains a challenge to understand how the suggested account avoids circularity. Consider Kant's example a bit more carefully. The apparently simple suggestion is that concept formation begins from a group of visual representations ("I see . . . a spruce, [etc.]"), which are first brought together with one another through an intellectual act of *comparison*. Once they are "in relation" to the same "unity of consciousness" (*per* the definition of comparison), the understanding can engage in *reflection*, which makes explicit certain similarities among them—in Kant's example, the presence of trunks, branches, and leaves. Finally, the understanding uses an act of *abstraction* to subtract the many differences in the *ways* these instances are leafy, branched, and betrunked so as to arrive at an empirical concept covering all of them, viz., <tree>.

But the simplicity of Kant's story is deceptive. As we saw, the three logical acts are meant to "generate" concepts "as to their form," i.e., their defining generality. From that viewpoint, it becomes clear that *reflection* must bear the decisive weight in the account; after all, reflection is the act that identifies "*how* various representations" belong together "in one consciousness" (*Logic*, Ak. 9: 94, my emphasis) and thereby first frames the *general marks* that enable the emerging concept to perform its logical function as a "common" representation (*Logic* § 1, Ak. 9: 91).[9] So the crucial question is how reflection arrives at general marks like <leafy> and <branched> on the basis of the originally compared visual representations. That matter is left wholly in the dark by Kant's discussion, raising the suspicion that the Kantian strategy for forming the

---

[8] Perhaps most notably, see Pippin (1982, 113); (especially) Longuenesse (1998, 114–22); and Ginsborg (2006b).

[9] Recall the key remark from § 5 of the *Logic*: "This *logical* origin of concepts—the origin as to their mere form—consists in reflection, whereby a representation common to several objects (*conceptus communis*) arises" (*Logic* § 5, Ak, 9: 94). As we will see in section 13.2.3, the notion of *reflection* at stake here is deeply related to Kant's account of "reflecting judgment" in the third *Critique*, which also has the role of underwriting a cognitive move from particular cognitions (empirical judgments) to more general ones (principles). The connection is noted in Longuenesse (1998).

concept <tree> actually presupposes *prior possession* of the concepts <trunk>, <leaf>, and <branch>.[10]

Suspicions in this neighborhood are confirmed by closer consideration.[11] Once we stop to think about it, the example's most striking feature is that the specific trees Kant evokes are very *easy* to *distinguish* from one another: the spruces are coniferous evergreens with needle leaves, normally with a single, straight trunk and small, regularly spaced branches; willows are deciduous, with long, narrow leaves, stereotypically arranged on slender, drooping branches coming off a narrow, early branching trunk; and lindens are broad-leaved deciduous trees with an upward-spreading growth form and sturdy trunk and branches. What makes these tree-types so easy to distinguish is that the *particular types* of leaves, branches, and trunks they exhibit could hardly be more different. They seem to have been selected *not* for immediate visual similarity along these dimensions, but in spite of its absence. Kant's own presentation first notes the (substantial) differences among them and arrives only later—and, it suddenly seems, somewhat *mysteriously*—at "that which they have in common." In fact, the visual features of these leaves, branches, and trunks—and, consequently, of the trees themselves—are *so* different that it becomes a bit hard to imagine how the sort of "natural" and immediate, non-conceptual association normally posited as the key mechanism driving empiricist-style concept formation could get off the ground in this case (*contra* Ginsborg 2006b).

I submit that this outcome is no accident. Kant *chose* these three tree-types not for their irresistible similarities, but for their *differences*.[12] The similarities that lead to the common concept are not "given" directly through sense, but become salient only when we recognize the visual representations *under the related concepts* <leaf>, <branch>, <trunk>, etc., which must be contributed to the process by the understanding. It turns out that Kant's example of forming the empirical concept <tree> can only work against the background of these other conceptual marks, which are *presupposed*.

If you remain skeptical of this conclusion, consider a quick and dirty little experiment that has been part of my teaching for some years now. For the class meeting to discuss concept formation in Kant, I always collect some leaves and other plant parts on the way into class, and pass them around for the students to identify under common concepts—(don't worry, my wife is a botanist, and she awarded me a collecting license, valid just for this demo). In this exercise, my students have never yet classified

---

[10] This is also noted by Ginsborg (2006b, 39).

[11] It will turn out that the genuine worry is slightly more complicated—viz., that concepts like <leaf>, etc., *are* presupposed in this process, but then further, that these partial marks look to be formed through a prior reliance on <tree> itself, in which case the circularity of the Kantian account would be vicious. (Thanks to Hannah Ginsborg for comments.) But before getting to the full circularity point, we need to see why exactly <leaf>, etc., are presupposed in the process of reflection Kant describes.

[12] As we will see in section 13.1.2, these differences make an important contribution towards indicating the *range* of the intended concept, and thereby towards securing its proper generality.

evergreen needles as leaves when addressed with an open-ended prompt of the form: "What is this?" (while holding up a spruce leaf). Remarkably, this is so in spite of the facts 1) that I explicitly devote this class meeting to the problem of forming empirical concepts; and 2) that the assigned reading includes Kant's example about kinds of trees in the *Logic*, in which accurate reflection from just such items as spruce leaves is a key moment.[13] Try it yourself! I bet you'll get similar results. The obvious remark to make is that in order to see spruce needles for the leaves they are, one needs to be thinking about the plant from a botanical point of view, in terms of plant organs and their functions. That way, one can put aside the shape- and color-dominated stereotype that controls our common-sense conception of a leaf (broad, flat, green, etc.), and attend to the similarities that are actually conceptually relevant. My students are not in botany class, so they are (understandably) not in that mindset; hence the results. But that diagnosis reveals the telling point. The *conceptually relevant* similarities among visual perceptions of a spruce, a willow, and a linden, are *not obvious just by looking*. One needs to look in a certain way, guided by what I called a "botanical mindset," which is, of course, a substantial theoretical achievement characterized by extensive prior conceptual articulation.[14] The relevant similarities among such visual representations simply are not obvious, empiricist-style associations that practically force themselves onto sensory consciousness, but subtler patterns whose importance only becomes salient against a pre-existing conceptual background. My claim is that Kant chose to evoke three tree-types with such *dis*similar leaf, branch, and trunk forms because he was keenly aware of this point and wanted us to apprehend it.[15]

Now, however, the full grounds for a circularity worry about Kant's account come into focus. The deceptively simple example of spruces, willows, and lindens stacks the deck by presupposing the concepts <leaf>, <branch>, <trunk>, etc., which themselves hang together as a cluster apparently because they are concepts determining parts of *trees*. That raises a pressing question: given the *lack* of obvious or forceful sensory similarities along the particular dimensions to which Kant's example directs attention, why were these particular visual representations grouped together as the relevant comparison set in the first place? I do not deny, of course, that the perceptions are similar. They all represent *trees*. But if *that* similarity is the driver of their association, we

---

[13] In fact, the students are often not sure what to say about Manzanita leaves, either, if they are young and reddish or bright red and curled due to leaf gall.

[14] *Perhaps* it would be enough to think of leaves (more common-sensically) as *tree-parts of a certain sort* (tending to fall off occasionally, usually green, etc.), though I myself have doubts that you would get all the way to <leaf> from visual experiences of spruce needles without an idea of leaves as plant organs. Either way, the crucial point remains, which is that fairly sophisticated conceptual capacities (which certainly threaten to involve the concept <tree>) would normally need to be in place *beforehand* in order for the relevant similarities among the leaf-types cited in Kant's example even to become perceptible as such. (Thanks to Hannah Ginsborg for discussion.)

[15] On Kant's sensitivity to the importance of such scientific classificatory considerations for the problem of concept formation, consider his reference to Linnaeus in the famous footnote to the "First Introduction" of the third *Critique* (*CPJ*, First Intro., Ak. 20: 215–16n; quoted in section 13.2.4).

directly confront circularity. The initial apprehension of these visual representations (plus unspecified others that would belong to the same series) *as similar* looks to be an *exercise* of the conceptual capacity to recognize trees, so it cannot serve as the initial step in an explanation of how we form the concept <tree> for the first time. On the contrary, the association of just these visual perceptions seems to presuppose possession of that concept.[16] In sum, the problem of circularity is not simply an artifact of later conceptualist interpretations, but a worry raised directly by Kant's own characterizations of how empirical concept formation works.

13.1.2 Generality

The same issue—about how we apprehend the relevant similarities among perceptions contributing content towards concept formation—gives rise to a second, related problem about the *generality* of concepts. The problem has been emphasized by Hannah Ginsborg (2006b, 37–42; 2011), whose work has arguably done more than anyone's to clarify the issues surrounding Kant's theory of empirical concept formation. Ginsborg frames the issue in Wittgensteinian terms. If we think of the given sensory representations as a kind of series, then concept formation appears as a problem of identifying the conceptual rule that could explain "how to go on" in the series.[17] From this standpoint, the problem of attaining conceptual generality belongs with well-known puzzles concerning such rules. Any finite series of given perceptions is bound to remain compatible with more than one possible rule for extending it. How, then, can we move from a finite induction base of sensory inputs to a concept with *full generality*, which must serve as a rule determining the concept's extension not just in the given instances but far beyond them, for an indefinite number of instances? This

---

[16] Prominent discussions of Kant's account in the literature have exhibited (sometimes backhanded) recognition of this basic point. Ginsborg (2006b, 39–40) raises circularity worries similar to those rehearsed in the text, and she therefore turns elsewhere for a solution to the problem of Kantian concept formation (viz., to general associative dispositions combined with a "primitively normative" appreciation of the correctness of those dispositions). On the more backhanded side, Pippin (1982, 113) suggests that the point of Kant's discussion in §§ 5–6 of the *Logic* is not to give an account of how concepts are initially *formed*, but instead merely of how they are made explicit, or clarified. Béatrice Longuenesse (1998, 116) suggests that we should not understand Kant's account in the way he literally presents it—i.e., as a sequential process through which representations are *first* brought together via comparison, *then* common general marks are identified through reflection, and *finally* differences are removed by abstraction. Instead, comparison, reflection, and abstraction should be viewed as mutually dependent processes carried on simultaneously. In that context, she proposes to remove circularity worries by the suggestion that we could make do with a mere *schema*, rather than the full-fledged concept <tree>, to guide similarity detection during this three-aspect, simultaneous processing. That way, the full concept can first emerge as the output (Longuenesse 1998, 116–17). To my eye, this move just pushes down the bump in the carpet. After all, only a schema that carried the specific conceptual content <tree> could really do the work of focusing attention on the non-obvious similarity among the input representations. The question then arises, how do we attain that schema? Longuenesse's answer is not reassuring: "the schemata result from the very acts of universalizing comparison of which they are the object" (Longuenesse 1998, 116–17). This seems to *reinforce* the worry about circularity, rather than defuse it.

[17] Kant himself occasionally suggests that concepts can be fruitfully understood as rules; see, e.g., A 126, A 132–3/B 171–2, A 135/B 174–5.

generality issue reinforces the circularity worry: if one *already had* a general empirical concept defining the relevant class, then that concept would impose "distributive unity" on its instances; that is, it would determine, for each of the indefinite range of potential instances, whether it fell into the extension of the concept or not (see B 40, A 644/B 672).[18] So the unity of the indefinite class could easily be secured if the general concept could be presupposed. But if the task is to form the concept in the first place without circularity, by "moving up" from the instances to the general representation, then the rule-skepticism associated with the generality problem threatens.

Ginsborg's solution relies on two key elements. First, she posits a Humean-style psychological disposition to associate perceptions (for example, of trees). Such dispositions exhibit a certain generality, in that the scope of the perceptions evoked by an associative disposition can be indefinitely open-ended. But as Ginsborg (2006b, 47) recognizes, this generality pertains to subjective psychological dynamics, rather than to the content represented. To transform my disposition to associate tree-like represen- *the 'normative twist'* tations into a general representation *of the trees, as* trees, Ginsborg suggests that we supplement the psychological disposition with a "normative twist" (Ginsborg 2006b, 49), in the form of an *awareness* on my part that this very disposition is appropriate, or called for in the circumstances (see also Ginsborg 1997, 2006a, 2006c, 2008). The normative character of this awareness is supposed to "incorporate" the generality of the disposition into the content of the perceptions, thereby forming a concept that subordinates the associated perceptions to a rule (Ginsborg 2006b, 49; 2006c, 72).

I remain doubtful about this move based on considerations similar to those raised in connection with Kant's tree example, coupled with reflections about the overall role concepts are expected to play within his system.[19] Our discussion of trees already indicated grounds for worry about whether the *right* associative dispositions could be formed in the first place without assistance from the conceptual capacity that is supposed to be under construction. Ginsborg (2006b, 54) insists that such associations can emerge as a natural psychological response to clearly "associable" things, or perhaps to similarities that seem obvious, like simple shape and color properties where appeal to a natural "similarity space" may be plausible (for example, Ginsborg 2006a, 360–3; 2008, 74, 72–5). As we saw, however, Kant himself oriented his discussion of spruce, willow, and linden trees as much around the *dissimilarities* among them as the

---

[18] Barring vagueness, of course, which demands its own separate treatment. On the distinction between distributive and collective unity, see Friedman (1992a, 301–11, esp. 307).

[19] To be clear about the intended force of the ensuing discussion and its dialectical posture vis à vis Ginsborg, I do not pretend that my observations below offer decisive considerations against either her position (as a philosophical account of concept formation) or even her interpretation of Kant. I believe that our differences on questions of detail turn out to be grounded on far-reaching global views about what philosophical problems Kant's theory of concept formation is intended to solve, what status it is supposed to have, and consequently, how strong the notion of logical generality informing the generality problem is supposed to be. I cannot settle these wider issues. Instead, I aim to indicate my reasons for interpreting Kant as I do, and thereby to clarify the nature of the problem of generality as Kant must face it (on my interpretation). The contrast with Ginsborg's interpretation helps to highlight the relevant issues.

similarities. In that light, the underlying similarities among those sensory representations appeared not as immediate and "natural," but instead as sufficiently complex to demand conceptual guidance in establishing the relevant pattern of association in the first place and discriminating the conceptually relevant pattern from nearby alternatives.

I believe Ginsborg would reply that on her view, such content-based sensory similarities are "downstream" from our shared, natural dispositions to associate, which are supposed to be available in advance (at least for some set of relatively primitive concepts, including <tree>) to underwrite general groupings of perceptions suitable for getting the process of similarity identification, and thence concept formation, off the ground.[20] On this picture, we find trees similar in that (and because) we are naturally disposed to associate them, and it is the generality (extending to indefinite instances) and commonality (across cognizers) of that disposition, ultimately, that funds the generality of a concept like <tree>. (Concepts of the most basic, "natural" sort may then be involved in the formation of more specialized, derivative concepts like <leaf>, <branch>, etc.)

commonality

But can true Kantian generality rest so squarely on strictly Humean associative tendencies? I think not. Two interconnected issues arise, one concerning what I just called "commonality," and the other about logical generality itself. Consider, one key reason for Kant's example to have referred to such a variety of trees was the need to secure an induction base indicating something of the range of the target concept. If his examples showed greater immediate perceptual similarity—if, say, they were all deciduous trees with broad, green leaves nicely fitting our common-sense stereotype—then the induction base might have pointed towards a different, less general concept, like <hardwood tree>. Ginsborg's rule-skeptical framing of the problem evokes a similar concern about just which concept a given group of perceptions points towards. Now, because multiple conceptual rules are consistent with any finite induction base, the associative disposition that leads *me* onward from the given set of instances might be different from *your* associative disposition based on the same instances, or from the one that would best capture the overall perceptual information that nature will eventually contribute to our collective experience. On Ginsborg's picture, this difficulty about commonality is meant to be resolved by a natural psychological fact that human beings share the same sorting dispositions—at least for some group of basic concepts. In my view, Kant would have found the appeal to contingent psychological commonality insufficient to ground true logical generality, which must be suitable to support necessary truths. For example, concepts are supposed to be logical representations capable of underwriting a priori analyticities binding on all

Objections to GInsborg's use of Hueman associative dispositions

---

[20] Pers. comm.; see also Ginsborg 2006b, 54. (Special thanks to Ginsborg for helpful exchanges on this point.) It is, of course, an interesting issue for any such position which concepts belong in the "primitive," or "basic," set for which robust natural associations are shared sufficiently broadly to provide a basis for the first round of concept formation. Ginsborg's remarks suggest that concepts of ordinary middle-sized objects would play a special role here.

cognitive agents, not just those who happen to share my associative dispositions. Indeed, containment relations among concepts serve as the crucial medium of inference in the categorical syllogism, which, as a central domain of general logic, is supposed to govern all thinking as such. So even if we could assume that *all* humans had exactly the same associative dispositions for basic conceptual groupings, resting conceptual content on contingent psychological commonality among human beings would seem insufficiently universal.[21] A further observation, while not dispositive by itself, supplies further evidence that Kant would have been reluctant to rely so heavily on associative dispositions. Recall, Kant argues for a transcendental principle of systematicity whose function was to provide an a priori (albeit merely regulative) guarantee that nature itself must exhibit sufficient regularity for experiences to be graspable (at least in principle) through suitably simple, tractable, and systematically related general concepts. I will not pause to explore Kant's principle or his challenging argument for it, but note what follows from the *mere fact that he felt the need for it*. For Kant, the presuppositions for empirical concept formation were supposed to carry transcendental, necessary status, and not to rest on contingent facts about human cognitive psychology. (Kant's attempt to ensure systematicity *in the data* of experience also indicates that for him, concept formation depends on prior similarities really given in experience, rather than treating such similarities as "downstream" from our tendencies to associate perceptions, as the Ginsborg view would suggest.)

Turning now the second issue, I suspect that Kant's conception of the logical generality of concepts is simply stronger than Ginsborg's, or than any that could plausibly be built into associative dispositions. For him, the generality of a concept establishes a "distributive unity" over a domain comprising indefinite instances (A 582/ B 610, A 644/B 672), and simultaneously covering an infinite range of conceptual possibilities in its logical extension (B 40). Kant understands that infinite extension via the *logical principle of determinability*, according to which general concepts are in principle determinable by one or the other of each pair of opposed predicates that is not already included in or excluded from the concept (A 571/B 599). Thus, the distributive unity of concepts ought to extend to cover *every possible* instance, settling whether that instance falls under the concept or not. After all, by the principle of determinability, the marks exhibited by the potential instance must find their place either among those included or excluded by the concept, or else among the potential determinations that could specify

[margin note: distributive unity]

[margin note: Kant's conception of logical generality]

it (subject to excluded middle). In that sense, the logical generality of concepts (*sensu* Kant) is quite ambitious, and given the rule-skeptical considerations so rightly empha-sized by Ginsborg, the gap between conceptual generality in this sense and any finite induction base of instances is large.

Natural associative dispositions close part of this gap, but not all of it. My untutored disposition to associate perceptions of trees does plausibly extend to indefinitely many instances, providing a kind of generality, but it is not plausible that it delivers a decisive answer for *any* potential instance—settling, for example, whether various junipers, or *Heteromeles*,[22] or for that matter, willows, are really trees (versus shrubs, say).[23] While Ginsborg would likely take this as a *selling point* (since associative dispositions make a better match for the fuzzy edges of our ordinary concepts), the Kantian principles just considered suggest that he would see any such indefiniteness as a logical flaw com-promising the true generality of the concept, which the process of concept formation and refinement ought to correct. Such generality failures can bleed back to undermine commonality, as well; given the indefiniteness of our associations, it would be entirely possible for you and I to have dispositions that agreed about the range of perceptions given so far but failed to coincide indefinitely—a gap that could be exposed by the emergence of some genuinely novel instance that disposed us to different classificatory reactions. Kant's commitment to concept definiteness suggests (*contra* Ginsborg) that concepts with true generality should provide *guidance* about how to go on in the face of such novel instances. Such strong generality, however, could never be traced to our

---

[22]   *Heteromeles* is the genus of woody shrubs/trees, commonly known as toyons or California hollies, whose abundance on certain Los Angeles-area hillsides gave rise to the name 'Hollywood.'

[23]   This is no accident. Being a tree is a growth form property, and there is no clear separation between the tree habit and the shrub habit—a fact that my list of examples was meant to evoke. A good indication of difficulties with the ordinary concept <tree> comes from its Wikipedia entry (a nice authority for the *ordinary* concept), which remarks that "Although 'tree' is a term of common parlance, there is no universally recognized precise definition of what a tree is, neither botanically nor in common language" (captured on January 27, 2014, at <http://en.wikipedia.org/wiki/Tree/>). Amusingly, when I accessed it, the Wikipedia article contained a head notation that it needed attention from an expert, but on the question relevant for us, no help is forthcoming. At the authoritative Angiosperm Phylogeny Website (<http://www.mobot.org/MOBOT/research/APweb/>), the glossary entry for 'tree' contains the not-so-helpful, "a woody plant at least 5 meters high, with a main axis the lower part of which is usually unbranched." Setting aside bonsai trees, as well as the arbitrariness of the idea that being 196 $^{27}/_{32}$ inches tall could decisively separate trees from shrubs and further related thoughts, I simply note that the willows themselves, one of Kant's paradigm groups, include many species that do not regularly attain five meters and *very* many with early branching trunks. As I remark in the text, Ginsborg would likely find this outcome congenial; it is to be expected that ordinary concepts like <tree> will very often fail to exceed our everyday sorting dispositions in perfect logical generality, and just such imperfect concepts are the ones whose content would most plausibly be traced to mere dispositions of the sort she takes to be fundamental. By contrast, I take Kant's view to be that such empirical concepts are something like provisional bets to the effect that this concept (or something nearby) will have a definite logical place in a systematic hierarchy of concepts characterized by completely perfect logical generality, whose conceptual content will have been fully reconciled with their non-logical exten-sions in the progress of theory towards the ideal limit (see section 13.2 for discussion). Even when we are betting, therefore (and consequently know to expect revision and refinement), we still make an implicit *claim* to perfect generality, which is essential to the logical form of these representations as concepts (viz., universality). In this respect, I believe, Kant himself is radically less Wittgensteinian than Ginsborg is.

actual psychological dispositions to respond (which here diverge *per hypothesis*), leaving us with the uncomfortable result that Kant's own approach to the generality problem would seem to *presuppose* properly general concepts, and thus to raise the threat of circularity.

It might be supposed[24] that the second aspect of Ginsborg's proposed solution—the appeal to a primitive normative awareness of the correctness of my associative disposition—would be of some help in avoiding this consequence. My sense that *this* pattern of association (i.e., the very one I have) is the correct one might rule out its competitors and attain definite generality for my representation. In the end, however, no progress can be expected from this angle. The "awareness of normativity" countenanced by Ginsborg carries no specific content by itself (concerning trees, or the like); all such content remains confined to the given perceptions, so as to avoid circular presupposition of a general concept. In that sense at least, the primitive awareness of normative appropriateness remains "external" to the content represented in the same way Ginsborg (2006b, 47) herself worries that the mere disposition does. True, it avows the appropriateness of *this* disposition, but it does so indexically, not by specifying in general terms which of the various dispositions compatible with the induction base it intends to pick out. Therefore, the same possibility of divergence between the dispositions of different agents just imagined, revealed in differing responses to a novel instance, remains.[25]

Such a possibility is a bit troubling for an account of concept formation that is supposed to yield determinate general concepts suitable for use in public language and shared cognitive enterprises. But even if we could accept that result for our own philosophical purposes, it falls far short of the ambitious conception of logical generality envisioned by Kant's ideas about the principle of logical determinability and the distributive unity produced by concepts. The postulated normative awareness is insufficient to transform an associative disposition into a representation with the full generality proper to concepts so understood, which would provide guidance about how to go on in the face of novel instances, rather than passively awaiting one's dispositional response—whatever that turns out to be. Thus, Ginsborg-style appeals to primitive normativity do not suffice to assuage all skeptical worries about rules and mere associations. It appears that Kant's own route, with its apparent reliance on prior conceptual capacities, may be needed after all.

---

[24] I was initially attracted to this supposition myself. Thanks to Hannah Ginsborg for helpful exchanges that helped me to see the consequences of the idea, and also to see that her own position is not rightly understood along these lines.

[25] Ginsborg (2006b, 48–52) is clearly aware of this possibility. In her view, the importance of such cases is limited by her supposition that, for a range of basic concepts, common dispositions will be shared as a matter of psychological fact, and perhaps also by the idea that the zones of indefiniteness such dispositions leave open will match the real vagueness or indefiniteness of our ordinary concepts.

13.1.3 Corrigibility

The need to identify the right pattern of similarities among given perceptions also points towards a third significant problem, which I will call the problem of *corrigibility*. The issue concerns how the contents given via sense can constrain the content of concepts, and it raises a challenge for non-conceptualist readings, paralleling the circularity difficulty for conceptualists. The general demand of corrigibility is straightforward. Any plausible account of empirical concept formation needs to explain how sensory experience can be deployed to *correct* our emerging concepts. After all, if the target concept is to count as empirical, then its content should be based on experience, and no content would count as properly responsive to experience unless it were possible for an experience to fail to match it, and thereby force correction. Two basic conditions are presupposed in order for such correction to be possible: first, the experience must *match* the concept well enough to count among the data to which the emerging concept ought to be held responsible (rather than as a representation of something else entirely, to be thought under some *other* concept); but second, there must also be a *mismatch* between experience and the concept as articulated so far, so that the experience induces a corrective alteration.

Despite my paradoxical formulation, it is clear enough how these two conditions could be simultaneously satisfied—as long as one *already* has representations with general content (i.e., concepts) to work from. As we saw, a concept like <tree> or <leaf> imposes distributive unity on an indefinite range of instances, thereby determining how we should extend a given series of perceptions to novel cases. In addition (Chapter 2), any concept has an intension comprising many further, interrelated concepts, each of which imposes similar distributive unity on its instances. Empirical correction can arise through the interaction of these two features—the definite general contents of the concepts, and the inferential connections among them—which together allow us to determine that some novel experience belongs to some target concept's extension, even though it (just as definitely) conflicts with some determination of another, inferentially related concept. Imagine, for example, that I have formed an empirical concept of trees based solely on angiosperm samples (all of which exhibited stereotypically broad, flat leaves and deciduous phenology), and that I have built those marks into my concept <tree>. Suppose I then encounter some evergreen spruces. They must be counted as trees because of their height and robust, elongated stems (trunks), but their leaf features do not match my previous conception. The experience of the spruces can therefore force a change in my concept <leaf>, expanding it to accommodate needle forms, and thereby corresponding changes in my target concept <tree> to incorporate needle leaves and non-deciduous phenology.

But what if I do not have a relevant concept already? Suppose that I am engaged in the initial attempt to form such a concept through empiricist-style abstraction, relying solely on similarities directly exhibited in what is given by sense. In that cognitively more impoverished context, Ginsborg-style worries arise about how a novel perception could

provoke correction by making appropriate contact with the previously given series. As we saw, the given perceptions by themselves cannot determine how I ought to extend the series. That weakness gives rise to two problems, each corresponding to one of the features that the appeal to prior conceptual articulation contributed towards an account of corrigibility.

The first is an immediate application of the problem of generality. Without the structure provided by a prior general concept, the given series of perceptions is insufficiently determinate to settle whether the novel candidate is at all relevant to the concept I seek to form, either as instance or counterexample. By hypothesis, the novel perception is different enough from others in the series to be a candidate for provoking correction to my emerging concept, *if* it correctly belongs to the series at all. But whether or not it does belong depends on how we should "go on," which is just what remains underdetermined by the series. It might be thought that sensible similarities could settle the matter, but I am skeptical. The problem is not only that the relevant similarities might be less than transparent to the senses, in the way we saw with Kant's tree example, but a more general worry about the weakness of the similarity relation itself. To paraphrase Davidson's (1984, 254) remark about triviality in similes, the problem is that everything is similar to everything else, and in too many ways. In order to generate the right sort of contact between a novel perception and the previously given set, we need a specification of the *relevant respects* of similarity—which is to say that we need some determinate conceptual articulation.[26] This weakness corresponds to the first feature contributed to corrigibility by concepts, namely the *definiteness* offered by presupposed concepts.

The second feature we identified in the earlier case—the reliance on multiple, inferentially interrelated concepts—makes additional trouble. Even if we strengthened the empiricist apparatus to admit not just groups of similar perceptions, but also Humean dispositions to associate perceptions in patterns extending beyond the given instances, there is still not enough for proper corrigibility. While we may grant that the disposition could settle whether or not a novel perception is associated with the previously given class, thereby addressing the first weakness, it cannot pull off the *combination* of *match* with the novel perception (so as to count it among the relevant data) and simultaneous *mismatch* (so as to provoke alteration) that was involved in corrigibility. Either the disposition associates the new perception with the previously given ones, or not; if so, then it meets the first condition but not the second, and if not, then it can pretend to meet the second only at the expense of failing the first. If we could assume prior general concepts, then their inferential interconnections could

---

[26] See Weisberg (2013) for a detailed discussion of similarity which reinforces the main moral I draw here—viz., that similarity can do its cognitive work for us only against a very substantial, conceptually articulated theoretical background. In particular, Weisberg shows that establishing cognitively significant similarity between a model and the system it helps us learn about involves substantial chunks of background theory.

afford crucial triangulation, giving the novel perception leverage to force a correction in the target concept—the new experience could be counted determinately as an instance of the target concept while nevertheless forcing an alteration to its content because of mismatch with our prior conception of a property captured through *another inferentially implicated* concept. Associative dispositions could do the same work only if they were systematically connected in a similarly inferential, reasons-transmitting way. But if the identities of the hypothesized dispositions depended on their *contents* rather than simply their causal profiles, so that their interdependence counted as inferential connection of the needed sort, that would suggest that they were *already* conceptual capacities, and we would not have avoided presupposing concepts after all.

The moral is that corrigibility relies on some conceptual articulation among the representations we aim to correct through sensory evidence. It is in that sense that non-conceptualist readings of Kant's theory of concept formation face a challenge about circularity, just as conceptualist ones do. Such views insist that the content of empirical concepts derives from the non-conceptual content carried by sensible intuitions. But such content cannot be directly extracted from experience by simple Lockean abstraction. In order to shape the emerging content of a concept under formation, experience should serve as a *normative* constraint on conceptual content by satisfying the conditions of corrigibility. And to do that, the emerging content needs to have conceptual generality already, and be inferentially connected to other general concepts (so that, for example, the decisive instance representing a spruce can be *definitely* ruled *in* as an instance of <tree>, even as it (equally definitely) falls outside my prior concept <leaf>, thereby forcing a revision in which <tree> is implicated because of its prior conceptual connection to <leaf>). As a result, the corrigibility of concept formation threatens to depend on a prior possession of the very concept I am seeking, and we are forced back upon the circularity from which the retreat to the empiricist picture based on pure abstraction was supposed to liberate us.

13.1.4 Concept identity, hierarchies, and analyticity

We have now seen three interrelated problems with the mechanism of concept formation—circularity, generality, and corrigibility. Aside from these worries about the mechanics of Kant's account, there are further problems arising more specifically from views about concepts articulated in earlier chapters. In particular, first, we saw in section 2.4 that the *Critique*'s official definition of the concept (A 68/B 93) seeks to smooth over a difference between two different conceptions of what fixes a concept's identity conditions—one based on intension, which counts concepts as the same if they contain the same marks, and the other based on extension, which permits a concept to preserve its identity across a *change* in marks in virtue of designating the same object (see Kant's treatment of water at A 728/B 756). The connection between these two constraints on concept identity ought to be explained by the theory of empirical concept formation, since that theory concerns precisely the relation between conceptual contents

composed of inferentially related marks, on the one side, and the conceptually articulable features of objects revealed through experience, on the other.

Second, my account of analyticity depended on treating conceptual content through Porphyrian concept hierarchies, which reconstruct the logical relations among the conceptual marks that together constitute a concept's content. But when such hierarchies make an explicit appearance in the *Critique*, they arrive in the "Dialectic" Appendix, where they function not as part of the theory of analytic judgment, but instead as part of Kant's characterization of the theoretical systematicity he posits as a regulative ideal. Since I have argued that a system of philosophy based on such a hierarchy would represent just the sort of fully analytic metaphysics that Kant *attacks* in the "Dialectic," I owe readers an explanation of the positive role of such analytic hierarchies in theory building in general, and in empirical concept formation in particular. After all, analyticity depends on concepts having contents, which do or do not stand in definite relations of reciprocal containment or exclusion, and Kant clearly assumes that empirical concepts, as well as a priori ones, can figure in such analytic judgments.[27] Therefore, an account of Kant's theory of empirical concept formation is needed to complete my defense of containment analyticity as a coherent logical notion.

To be satisfactory, that account must meet substantial constraints: it needs to show how concepts integrate the passive deliverances of sense with the active logical operations of understanding, and also how they attain genuine generality while preserving corrigibility by sense experience and avoiding (vicious forms of) circularity. At the same time, the interpretation must make sense of Kant's definition of the concept by explaining the proper relation between its intensional and extensional commitments, and account for the positive role of Porphyrian concept hierarchies in the advancement of knowledge.

13.2 Kant's Theory of Empirical Concept Formation—Sketch of an Interpretation

The complexity of the issues at stake in empirical concept formation and its far-reaching implications for Kant's larger theory of cognition preclude full treatment here. In lieu of a detailed reconstruction, I can offer only an outline sketch of Kant's position. As it happens, though, sometimes the philosophical gods smile on us, and our problems themselves provide materials towards their resolution. I will propose that on Kant's theory of concept formation, true logical generality must be supplied from the side of the understanding and its concepts, but that a frank and fuller recognition of the high intellectual sources of concept formation points towards a strategy for avoiding

---

[27] Perhaps most notoriously, Kant insists in the *Prolegomena* that "all analytic propositions are still *a priori* judgments even if their concepts are empirical, as in: Gold is a yellow metal" (*Prol.*, Ak. 4: 267), an example singled out for some ridicule in Kripke (1980, 39). See n. 42 on the problem of analyticities involving empirical concepts.

vicious circularity. Corrigibility, meanwhile, will turn out to be not so much a problem as an opportunity for the theory, in that the process of actually correcting our essentially corrigible concepts is the very thing that supplies them with genuinely empirical content.

While space precludes full development of these suggestions, I will try to indicate major areas of omission as they arise, including one right at the outset. Readers will have detected sympathy for a broadly conceptualist interpretation in my framing of problems in section 13.1, but anything like a complete defense of those sentiments would require a book of its own, and I will not be writing such a book. Still, a gesture at some grounds for that orientation can serve as a useful point of entry for the reading I propose.

13.2.1 Conceptualism in the "Transcendental Deduction"

To my mind, the fundamental pressure in favor of conceptualist approaches to Kant is textual, but the textual case is not a straightforward matter of one or a few decisive passages that settle the question;[28] instead, it arises from a wider take on the basic aims of Kant's theory of cognition and his general strategy for pursuing them. One core text with relevantly large-scale ambitions is the "Transcendental Deduction of the Categories," but it is notoriously the most difficult chapter of the *Critique*. I will therefore limit myself to just two points bearing on concept formation—one about the famous "threefold synthesis" passage in the A Deduction, and a related one about the culminating argument in § 26 of the B Deduction.

Non-conceptualist readers of Kant often appeal to the "threefold synthesis" passage in support of the idea that the content of empirical concepts must come from intuitions, or perceptions.[29] Such interpretations tend to read Kant's text as a genetic account explaining how intuitive data of sense are initially apprehended (via the first synthesis, of apprehension), after which successively apprehended images are recalled (second synthesis, of reproduction), in order that they can finally be recognized to belong together as representations of one object (third synthesis, of recognition in a concept). On that construal, Kant's explanation of the threefold synthesis offers a

---

[28] The vigorously argued Hanna (2005), for example, organizes a defense of non-conceptualism in this fashion, by starting from the alleged instances in which Kant clearly appeals to non-conceptual content in decisive key texts (see also Allais 2009, 387–8). The dialectic in the literature, however, often just proceeds from such observations to interpretive contestation over the import of those very texts. To give one striking example, Hanna quotes (as decisive evidence of non-conceptualism) Kant's remark at the beginning of the Deduction that "Objects can indeed appear to us without necessarily having to be related to the functions of the understanding" (A 89/B 122; quoted at Hanna 2005, 259), along with a couple of ensuing repetitions of the same idea. This would indeed seem to be decisive. But I, at least, take these particular remarks (in their context) to be a description not of how things are, but of how they appear to be—they frame the *difficulty that the argument of the Deduction is meant to overcome*, and therefore indicate the very opposite of Kant's settled view. Since such disputes can only be resolved by appeal to an overarching interpretation, I have preferred here to proceed straightaway to that more general level, even though I can only gesture at the outlines of the interpretive approach I prefer.

[29] See, e.g., Hanna (2001, 39, but cf. 41–5) and Allais (2009, 396–7).

"bottom-up" story about how we form concepts: we start from unconceptualized sense impressions and deploy cognitive synthesis to form first sensible intuitions (so far still non-conceptual), and then imaginative associations of such intuitions, before finally incorporating the previously given intuitive content into a general concept. The threefold synthesis passage thus appears to provide powerful evidence for a non-conceptualist treatment of Kant's theory of empirical concept formation.

In my view, such "bottom-up" readings (mis)take the *expository* ordering of topics in Kant's text for a *dependence* ordering in which the second synthesis Kant discusses is supposed to succeed the first in time and depend on it, and then the third succeeds and depends on the second. Careful attention to the text shows that such a construal gets the dependence relations driving Kant's argument backwards. In fact, the argument about threefold synthesis rests on claims of "top-down" dependence, according to which any synthesis of apprehension would be impossible without a (presupposed) synthesis of reproduction, which in turn could not function without the higher synthesis of recognition in a concept.

I concede that this "top-down" interpretation of the threefold synthesis argument contravenes many readings of the text and also (empiricist influenced) conventional wisdom about how the process of concept formation would have to work, but in my view, Kant's text forces this anti-empiricist reading of the intended direction of dependence. Consider first that Kant's main point about apprehension is not to postulate it as a primitive, unproblematic starting point for cognition, but instead to insist that what is apprehended via sense *cannot* be *simply given* passively because apprehension itself presupposes an active cognitive synthesis through which its content is taken up:

Every intuition contains a manifold in itself, which however would not be represented as such if the mind did not distinguish the time in the succession of impressions. . . . Now, in order for **unity** of intuition to come from this manifold . . . it is necessary first to run through and then to take together this manifoldness, which action I call the **synthesis of apprehension** . . .   [A 99]

Apprehension requires inputs, which come from manifold partial representations, but *manifold* contents can only be made available to cognition through successive representation, whereby the many constituents are explicitly distinguished from one another. Synthesis (an activity of the understanding; B 129–30) is then needed to bring them together into a "unity" for apprehension.

Turning next to the role of the imagination, Kant's main conclusion is that the kind of unified whole we have just seen to be involved in apprehension *presupposes* a synthesis of reproduction, as well:

if I draw a line in thought . . . I must necessarily first grasp one of these manifold representations after another in my thoughts. But if I were always to lose the preceding representations (the first parts of the line, [etc.] . . .) from my thoughts and not reproduce them when I proceed to the following ones, then no whole representation and none of the previously mentioned thoughts, not even the purest and most fundamental representations of space and time, could ever arise.

The synthesis of apprehension is therefore inseparably combined with the synthesis of reproduction.   [A 102]

Strictly speaking, Kant's conclusion that the two syntheses are "inseparably combined" asserts a *mutual and reciprocal* dependence upon one another, but it is the top-down dependence of apprehension upon reproduction that is non-obvious, and which it is the business of Kant's argument to establish. Reproduction depends on apprehension just in the straightforward sense that without ongoing apprehension there would be no representations to reproduce, but the quoted reasoning, while it relies on this obvious point, does not even bother to make it explicit. Instead, the focus is to establish that we could never arrive at a "whole representation" (the intended output of apprehension) without also presupposing a synthesis of reproduction, "inseparably combined with" the synthesis of apprehension. Kant specially emphasizes that even pure *intuitions* of space and time are parasitic on this reproductive synthesis of the imagination, driving home the argument's key implication that intuitive representations *cannot be given independently* of the synthetic activity of the imagination.

Now turning to the third synthesis, Kant's aim is again to establish a top-down dependence, this time of the reproductive synthesis on a recognitional synthesis governed by concepts:

Without the consciousness that that which we think is the very same as what we thought a moment before, all reproduction in the series of representations would be in vain. For it would be a new representation in our current state, which would not belong at all to the act through which it had been gradually generated, and its manifold would never constitute a whole, since it would lack the unity that only consciousness can provide for it. . . .

The word "concept" itself could already lead us to this remark. For it is this **one** consciousness that unifies the manifold that has been successively intuited, and then also reproduced, into one representation.   [A 103]

I do not contend that Kant's reasoning here is entirely transparent, but it should be clear enough what the *intended claim* is: it is supposed to be impossible for reproduction to fulfill its cognitive function (it "would be in vain") unless the reproduced contents can be recognized as the same again, and this recognition in "**one** consciousness" is effected by the operation of a concept (through a "synthesis of recognition in the concept"; A 103). Thus, Kant's claim is that there can be no cognitively efficacious reproduction without a synthesis of recognition in a concept.[30] Since we already saw that there can be no apprehension without reproduction, it follows that there can be no apprehension without a synthesis according to concepts, either. In sum, the fundamental structure of Kant's argument in the threefold synthesis passage asserts a

---

[30] Strictly speaking, in this case just as earlier, Kant's reasoning commits him to a *mutual* dependence between the two syntheses. My own view of the matter is that the "threefold synthesis" is not intended to describe three separate syntheses at all. Instead, the three syntheses are meant to be understood as three interdependent aspects of a single, numerically identical synthesis (which is *threefold*). I defend this interpretation in Anderson (2001).

top-down dependence in cognitive processing, according to which the lower-level synthesis of apprehension depends on the higher synthesis of reproduction by the imagination, which in turn depends on the conceptual synthesis of recognition.[31] The upshot of the argument is an anti-empiricist and conceptualist one: the very sensory apprehension that empiricists assume as the starting point for concept formation would be impossible without conceptual synthesis.

My second point about Kant's procedure in the Deduction is that the basic dialect-ical strategy manifest in these claims of top-down dependence in the threefold synthesis passage is by no means an idiosyncrasy of that passage, or of the A version of the argument. On the contrary, essentially the same reasoning animates the B version as well, especially in the crucial § 26. There Kant again contends that all apprehension relies on a synthesis that unifies a manifold, and moreover, that the unity achieved through that synthesis—even in the case of our pure formal intuitions of space and time, and consequently also for any particular intuition *in* space and time—must rely on the operation of the pure concepts of the understanding (categories) and is thus at bottom a product of conceptual synthesis (B 160–1). Kant concludes the key stretch of argument as follows:

But this synthetic unity [i.e., the one required for all apprehension] can be none other than that of the combination [i.e., synthesis] of the manifold of a given **intuition in general** in an original consciousness in agreement with the categories, only applied to our **sensible intuition**. Conse-quently all synthesis, through which even perception becomes possible, stands under the categories . . .   [B 161]

Again, I do not pretend to have explained how Kant's argument is supposed to work. For present purposes, it is sufficient just to see what it is *trying to claim*—namely, 1) that intuitive perception would be impossible without a synthesis; and 2) that this synthesis must be governed by the categories; and so 3) all perception depends on conceptual synthesis.[32]

---

[31] See Anderson (2001, 279–88) for further discussion of the workings of Kant's arguments based on cognitive synthesis in the "Transcendental Analytic."

[32] Kant's ensuing example reinforces that this is the intended shape of his argument:

Thus if, e.g., I make the empirical intuition of a house into a perception through apprehension of its manifold, my ground is the necessary unity of space . . . , and I as it were draw its shape in agreement with the synthetic unity of the manifold in space. This very same synthetic unity, however, if I abstract from the form of space, has its seat in the understanding, and is the category of the synthesis of the homogeneous in an intuition in general, i.e., the category of **quantity**, with which that synthesis of apprehension, i.e., the perception, must therefore be in thoroughgoing agreement.   [B 162]

That is, my perception of a house as a spatially extended object with parts requires a synthesis of apprehension, without which its spatial articulation cannot be made available to cognition. But the "very same synthetic unity" involved in that synthesis of apprehension "has its seat in the understanding, and is the category . . . of **quantity**." The argument here hinges on the idea that the category is valid for all objects of experience because the synthesis of apprehension that makes perception of the house possible in the first place is already parasitic on the higher synthesis according to the category. (N.B.: As it seems to me, the bearing (for debates over conceptualism) of Kant's notorious example in the *Logic* about the differences between the

In the end, this broadly conceptualist moral should not be surprising. After all, Kant's whole aim in the Deduction is to show, *contra* any empiricist derivation of metaphysical concepts, that the categories are a priori valid for all objects of knowledge, and his basic strategy is to argue that synthesis according to the categories is a precondition for the very possibility of the experience that an empiricist derivation would take as its starting point. If this approach is to reach its intended conclusion that "everything that may ever come before our senses must stand under the laws that arise *a priori* from the understanding alone" (B 160), then the argument will have to establish that *every* perception presupposes the categories, and so, that the synthesis of apprehension *as such* presupposes the categorial synthesis. That is, the entire promise of Kant's chosen strategy depends on his showing that no aspect of experience is innocent of dependence on concepts (namely, the categories), and he cannot afford to allow that either empirical perception or pure intuition supplies any exception. In that way, the broad outlines of a conceptualist approach are ineluctably baked into the cake from the outset.

13.2.2 Conceptualism and circularity

If, then, we find ourselves constrained into adopting some form of conceptualism by the express intentions manifest in Kant's theoretical aims and argumentative strategy, is there any way to avoid vicious circularity in the theory of empirical concept formation? In principle, the answer is yes. The idea that the experiences serving as inputs for empirical concept formation themselves presuppose conceptual structure would only lead to vicious circularity if the presupposed concept were the *very same one* that is supposed to be in the process of original formation. Nothing of the sort is yet entailed by the grounds for conceptualism we found in the Deduction. While Kant's approach did rely on the claim that all perception presupposes conceptual synthesis, the main conceptual preconditions were supposed to be a priori *categories*, not empirical concepts. Indeed, the whole point of Kant's strategy was to demonstrate the categories' a priori validity, and thus to secure their application to objects *without* relying on experience in any way. Conceptualism would hardly threaten circularity in the process of forming *empirical* concepts like <tree> if it claimed only that we could not perceive the trees as objects in the first place without subsuming them under some a priori categories (e.g., <quantity>, <substance>, <cause>), because these other concepts were never supposed to be produced in that episode of concept formation, or indeed, through any experience whatsoever.

In this light, the very problems we explored in section 13.1 indicate a first approach towards a Kantian account of concept formation. As we saw, a key part of the difficulty arose from the problems' *interaction*: there were natural ways to address the issues about generality and corrigibility, but those moves involved presupposing conceptual

perceptions of a house by a "savage" and a civilized man needs to be understood in the context of this argument in the Deduction.)

structure in the process of concept formation, and that seemed to throw us back onto worries about circularity. Kant's strategy in the Deduction appears to suggest a way out of the circle. It underwrites a principled distinction between, on the one hand, the empirical concepts—where we face the problem of achieving true generality despite the need to draw new conceptual content from (and hold it accountable to) particular experiences—and on the other, a set of a priori concepts, which might be available independently to provide conceptual articulation that could support the process of empirical concept formation.

The initial proposal, then, would be that empirical concept formation secures its conceptual presuppositions by deploying the categories in a special role; the categories inject the wanted conceptual structure into experience without presupposing empirical concepts.[33] The idea might be developed by appealing to the tight connection Kant draws between the categories and the conditions for representing objects. As Kant notes in his general "explanation of the categories" in B, they are supposed to be "concepts of an object in general" (B 128). Under that conception, the role of categorial synthesis is to forge necessary connections among representational contents that *bind* them to one another, enabling them to represent objects: "insofar as they are to relate to an object, our cognitions must also necessarily agree with each other in relation to it, i.e., they must have that unity that constitutes the concept of an object" (A 104–5). For example, the categories license us to take our perceptions as representations of enduring things (category of substance), extended in space and time (quantity), with determinate causal profiles (causality, interaction), and so on, thereby generating representations of stable objects with properties. To the credit of the initial proposal, the binding role of the categories in producing representations of objects has immediate relevance to the problem of corrigibility. Recall, one crucial step in addressing that problem was to ensure that different contents within a representation could be tied together in this way, so that a novel perception (via its unified internal complexity) could bear on multiple conceptual marks at once, permitting it to establish bona fide *evidential relevance* to the target concept in one dimension while forcing *alteration* to it in another.

Unfortunately, the initial proposal will not suffice by itself. While the special status of the categories helps to acquit the particular conceptualist arguments involved in the proof strategy of the Deduction of vicious circularity, the distinction between the categories and empirical concepts does not resolve all the issues raised in section 13.1. On corrigibility, we saw that the way towards a solution seemed to demand not only "binding" the contents within the novel perception so that it could engage multiple concepts, but in addition, the posit of *pre-existing general concepts* capable of representing

---

[33] This approach is broadly similar to that defended by Longuenesse (1998, and esp. 2005, 17–38), which she has tended to capture under the slogan that the categories play an essential role "at both ends" of the process of cognition, on the Kantian account. I have benefitted from working through Longuenesse's thought-provoking interpretation.

the interconnected properties of the object in a determinate, "projectable" way, so that a novel instance could count as definitely confirming or disconfirming the *intended* content of the target concept. Since the relevant projectable properties are exactly the ones revealed through (and corrected by appeal to) experience, we need to assume empirical concepts for this work; the categories will not do by themselves. A related point arises with respect to generality. To return to Kant's tree example, we faced a problem of identifying the proper respects of similarity that could define a truly general class, and solving that problem seemed to require prior possession of empirical concepts like <leaf>, <branch>, <trunk>, and the like. The contribution those concepts made to generality was to discriminate some determinate and correct way of "going on" from among the various possible ways of extending the initially given series of perceptions. But *all* (or anyway, many) such extensions would presumably represent *possible* experiences, and so be consistent with the categories. Thus, just as we saw in the context of corrigibility, so too with the problem of generality, highly abstract metaphysical categories cannot supply all the conceptual presuppositions for the process of concept formation. Empirical concepts still have to be presupposed, so the initial proposal fails to resolve worries about circularity.[34]

Still, the broad approach of that proposal remains viable in principle. Even given conceptualist assumptions, the process of forming a concept like <tree> is viciously circular only if the concept presupposed is the very same one being formed, namely <tree>. Perhaps, then, we could meet the conceptual requirements for addressing generality and corrigibility by deploying *other empirical* concepts. Something like that, after all, was suggested by our exploration of Kant's example from § 6 of the *Logic*, where the reflection producing the concept <tree> relied not on <tree> itself, but on further empirical concepts (<leaf>, <branch>, <trunk>, etc.).

In section 13.1, we worried that Kant's account in the *Logic* nevertheless *implicitly* presupposed <tree> itself, because the explicitly deployed concepts (<leaf>, etc.) hang together (and thereby determine a relevantly similar class of perceptions pointing towards a general concept) only on the strength of their interconnection *as marks of trees*. The role of the categories in the initial proposal suggests some preliminary (albeit not by themselves sufficient) resources to reply to this worry. After all, part of the work of binding the leafiness, branching, and betrunked properties to one another in experience *is* done by the special role of the categories, as "concepts of an object in general" (B 128). For Kant defines an "**object**" as "that in the concept of which the manifold of a given intuition is **united**" (B 137), and the categories, as the primary articulations of the metaphysically basic concept <object in general>, serve as the principal concepts through which contents representing different properties can be bound together in a single experience so as to yield representation of a unified object.

---

[34] The reasoning in this paragraph reflects doubts I share with Ginsborg (1997, 2006b) about Longuenesse-style interpretations of Kantian concept formation, which she calls "hybrid views."

Even so, our discussions of generality and corrigibility showed that more will be needed to resolve our problems. As we just saw, connecting the leafiness, branched, etc. features represented in perception as conjoined properties of an *object in general* will not be sufficiently specific to determine the relevant respects of similarity among the perceptions of spruces, willows, and lindens, absent further assistance from general *empirical* concepts. Arguably, moreover, corrigibility requires that partial concepts like <leaf> and <branch>, which identify the relevant similarities, should themselves be linked not just *qua* properties of the same object (conceptualized *in general* via the categories), but in addition via *inferential* connections to a common target empirical concept. After all, for concept formation to work, we want the empirical recognition of these properties to contribute to shaping the *content* of our target concept (<tree>), and not merely to yield a recognition that two *otherwise unconnected* concepts happen to be co-instantiated in one object (as, for example, in a perception that this book is blue), nor just to prompt a reclassification of some experience under one concept rather than another (as, for example, in a realization that the book is blue and not purple).[35] The remaining worry, then, is that we could never establish the inferential relations among partial concepts needed for corrigibility without presupposing their connection to (and the proper generality of) the very concept we aim to form, namely <tree>.

But connecting <leaf> and <branch> to the concept <tree> is not the only way to establish the wanted inferential relation to some common empirical concept. They are just as well (indeed, arguably better) connected to the concept <plant>, since most fundamentally, they are concepts of plant parts or organs. The way is now open for a non-circular strategy for reflecting the concept <tree>. With the help of the categories and the concept of an object in general, plus the *higher* empirical concept <plant> and its bundle of associated concepts capturing plant features (<leaf>, etc.), we recognize the decisive similarities among our visual experiences of a certain group of plants (spruces, willows, lindens, etc.). The operation of the categories allows us to identify stable features of the contents of these experiences and detect which ones are bound together in genuine objects. With the guidance of a pre-existing *conceptual* understanding of the differentiating plant features, we can group the experiences as a conceptually salient class and focus on the conceptually relevant similarities and differences within the class. In that context, particular features of the associated visual experiences first acquire the leverage to suggest crucial modifications to our pre-existing conceptual repertoire—for example, the tree growth form requires robust vertical support, and consequently exhibits a distinctive form of stem dominating the plant shoot; that feature of the experiences suggests formation of the concept <trunk> as a specification

---

[35] Recall from section 13.1 regarding corrigibility, the proposal for generating the needed pressure on the content of the target concept was that its content was inferentially connected to more than one other concept. That enabled classification under one of these further conceptual marks to guarantee that the challenging novel perception should be counted among the relevant data, while a mismatch with the other forced an alteration in its content, which must bleed over into the target concept (and others) because of the inferential connections among them.

of a prior concept <stem> (i.e., as a robust form of stem) and the incorporation of that mark into our target concept (<tree>). On the strength of many such insights, the process can gradually *reflect* a new concept <tree>, understood *from the beginning* as a *general* species of <plant>, characterized by certain special types of stems, branching patterns, leaf types, etc. As the new concept comes into shape, it can gradually be tested against further experiences to refine its content. The process of correction itself thereby supplies the distinctive empirical content that reflection deploys to carve out <tree> as a particular specification of <plant>.

Obviously, this strategy presupposes higher empirical concepts in the formation of any given target concept. One might therefore still worry (and even on the basis of some Kantian texts[36]) that the resulting picture of concept formation ultimately remains circular. After all, those higher concepts themselves must have been formed in their turn. That process might rely upon still higher concepts, but what about them? Surely, the regress must be stopped somewhere.

Reflection on the overall shape of Kant's system of theoretical philosophy leaves me sanguine that Kant himself would not have been much worried by this regress point (though since the overall system is at stake, this represents another moment where my remarks must be excessively sketchy and incomplete). Kant's system of nature leaves little doubt where to seek the regress-stopping highest empirical concept—it will be the concept <matter>. And as Michael Friedman (2013) has recently demonstrated in compelling and impressively detailed fashion, Kant envisioned a special systematic account explaining how the content of that highest empirical concept should be formed, through a construction in which the careful deployment of the categories and their associated pure laws play the key role, synthetically linking the crucial conceptual marks of matter (<impenetrability>, <extension>, <movability>, etc.) together into the concept, and giving it a precise content that is related not just to the a priori concept <object in general> and its specifying categories, but also to the fundamental synthetic a priori laws of a nature in general.

With such a high empirical concept in place, the way is open to form further empirical concepts from the top down—not through the same sort of highly

---

[36] For example, in the course of a discussion of reflection in the "First Introduction" to the third *Critique*, Kant writes that

But for those concepts which must first of all be found for given empirical intuitions...the power of judgment requires a special and at the same time transcendental principle for its reflection, and one cannot refer it in turn to already known empirical concepts and transform reflection into a mere comparison with empirical forms for which one already has concepts.   [*CPJ*, First Intro., Ak. 20: 213]

In my view, however, this text does not aim to deny the claim built into my interpretation—that the process of forming an empirical concept depends on some presupposed and inferentially related (but different) empirical concepts playing *some essential role*—but instead merely to make the point that this role for empirical concepts cannot replace the separate need for a transcendental principle ensuring a certain degree of systematicity in the *content* of experience: "For it is open to question how one could hope to arrive at empirical concepts...if, on account of the great diversity of its empirical laws, nature...has imposed on these natural forms such a great diversity that all, or at least most, comparison would be useless" (*CPJ*, First Intro., Ak. 20: 213), etc.

specialized technical construction that yielded <matter> in the first place, but instead *on the basis* of <matter> (or one of its subsequently determined specifications), which would be deployed along the empirically informed lines I sketched in the example about forming <tree> through specification of <plant>. This more fully empirical type of concept formation still presumes substantial prior conceptual resources; it would involve further applications of the categories (*qua* concepts of an object in general) to bind empirically given features into representations of stable properties of objects, and (as we saw) each instance of the process would also rely on higher empirical concepts possessing inferentially interrelated constituent marks. But if we accepted Kant's claims to have established the objective validity of the categories and a successful construction for the concept <matter>, then these assumptions for the process would be met.

I hasten to concede that even beyond these conceptualist presuppositions, the resulting account of concept formation takes on further, theoretically ambitious philosophical commitments. In particular, it entails that all the empirical concepts that eventually (in the limit of theorizing) receive properly scientific form and determinate content must together form a single logical *system* of concepts, since they will have been formed "from the top down." In addition, at least part of its plausibility as an account of concept-guided inquiry hinges on the thought that there is strong theoretical pressure to construct such a system arising from the side of higher concepts themselves. Broadly speaking, the idea is that we lack a fully satisfactory understanding of the content of a higher concept like <matter> or <plant>—and especially, of the *generality* of that concept—until we know something about what the different types of matter or plants are, whose common feature is to fall under that general concept; and so we face a theoretical *imperative* to form further, lower empirical concepts systematically related to <matter> (<plant>, etc.). Fortunately for the interpretation, both of these key ideas turn out to figure among Kant's commitments.

13.2.3 Kant on the logical system of concepts

The proposal that emerged at the end of the last subsection combines an appeal to the categories with reliance on inferential connections among background empirical concepts to supply the presupposed conceptual structure that permits experiences to contribute their content towards a newly reflected empirical concept. (The following metaphor may be helpful for some readers. On the picture I am sketching, the system of empirical concepts forms a logical structure that determines the content of concepts, in that a concept has its content in virtue of occupying a definite node in that network. Experience can shape the content of an empirical concept through corrigibility—i.e., by "bending" the shape of the network and changing relations within it to accommodate the experienced content.) As we just saw, the proposal entails that in the end, properly formed empirical concepts ought to be related to one another in a logical system.

Kant appreciated the role of systematic inferential connections in the process of concept formation, and indeed, crucially relied on the thought in his argument for a regulative a priori principle of the systematicity of nature in the "Dialectic" Appendix.

Recall, Kant arrives at the principle of systematicity by starting from three *logical* principles governing relations among concepts: a principle of *specification* underwriting the conceptual articulation of the domain of any genus through the determination of lower species concepts; a principle of *homogeneity* (or "*classification*"; see *CPJ*, First Intro., Ak. 20: 214), according to which different species can be unified under common genera; and finally, a principle of *continuity* of forms, according to which ever finer divisions intervening between species in logical space ought to be possible. Taken together, these three principles promote the sort of logical ordering on concepts explored in previous chapters—a hierarchy relating genus concepts to the lower species that determine and contain them, thereby establishing a system of inferentially significant containment relations (i.e., a "system **of logical division**"; *CPJ*, First Intro., Ak. 20: 217). The same sort of logical ordering now turns out to be a precondition of empirical concept formation itself. For in the "Dialectic" Appendix, Kant's agenda is to show that each of these logical principles presupposes a transcendental one ensuring (albeit with merely regulative, not constitutive, force) a parallel order built into the sensibly given content of our experience itself, so that the systematic unity exhibited in the logical order of concepts can "pretend to objective reality" (A 650/B 678) as a feature of nature. Kant's full argument to this remarkable conclusion need not detain us. What matters for us is just the step linking the logical principles to the parallel transcendental ones, because that is where Kant evinces commitment to the thought that empirical concept formation would be impossible in the absence of the inferential structure imposed by these logical principles. In the case of logical homogeneity, for example, Kant writes that

If among the appearances . . . there were such a great variety—I will not say of form[37] (for they might be similar to one another in that) but of content, i.e., regarding the manifoldness of existing beings—that even the most acute human understanding, through comparison of one with another, could not detect the least similarity . . . then the logical law of genera would not obtain at all, no concept of a genus, nor any other universal concept, indeed no understanding at all would obtain . . .   [A 653–4/B 681–2]

The goal towards which Kant's reasoning is heading is the strong conclusion that "sameness of kind is necessarily presupposed in the manifold of possible experience . . . because without it no empirical concepts and hence no experience would be possible" (A 654/B 682), but what matters for us is just the intermediate step along that path. Experience turns out to be impossible without transcendental homogeneity because without it "no . . . universal concept, indeed no understanding . . . would obtain . . . ," so that no empirical concepts could be formed, and the quoted passage reaches that result *through* the observation that "the logical law of genera would not obtain" in the imagined scenario of extreme diversity. Thus, Kant here implicitly relies on the same point that

---

[37]   I take Kant to refer here to the most general transcendental form of experience captured by space, time, and the categories.

emerged from section 13.2.2—namely that empirical concept formation depends on inferential connections among presupposed background empirical concepts, which Kant here encapsulates via the systematizing logical law of genera.

A second and related feature of the logical system of concepts also plays a significant role in empirical concept formation. The point is clearest in Kant's argument concerning the law of specification, where it emerges that inferential dependence relations among the concepts in a logical hierarchy are *interconnections*, running both up *and down* through the logical structure. We saw earlier how a lower concept like <tree> might arise as a specification of a higher concept <plant>, which it thereby includes as a mark and from which it inherits full logical generality. A similar inferential dependence on higher concepts also proved essential in our account of corrigibility. But in connection with specification, Kant emphasizes (reciprocally) that the content of these higher concepts itself depends on lower species, as well: "For if there were no lower concepts, then there would also be no higher ones" (A 656/B 684).[38] After all, the characteristic logical mark of concepts is *generality*, and generality unavoidably demands lower concepts: "for [a concept] is a universal representation, or a representation of what is common to several objects, hence a representation *insofar as it can be contained in various ones*" (*Logic* § 1, Ak. 9: 91). As I remarked in Chapter 2, Kant's thought seems to be something like this:

1. *Qua* general, a concept represents what is common to different things;
2. So in principle (in logical space), there are different ways to instantiate the concept, or different kinds of instance ("A representation that is thought of as common to **several** must be regarded as belonging to those that in addition to it also have something **different** in themselves"; B 133–4n);
3. But if we specified these different *kinds* of instance (or *ways* of instantiating the concept), that would *amount to* the identification of lower species concepts containing the original concept ("hence a representation *insofar as it can be contained in various ones*," i.e., in various lower concepts[39]).

---

[38] The importance of this aspect of Kant's view was forcefully brought home to me through many exchanges with Ludmila Guenova over the years. See Guenova (2008, ch. 2; 2013; and esp. unpublished ms.) for trenchant discussion of the connection of this point to Kant's account of systematicity.

[39] It might be claimed that my appositional remark over-reads the passage, based on the idea that the "*various ones*" in which our general concept is contained might be *intuitions* that fall under it, rather than lower concepts. But in what sense could a concept be *contained* in an intuition? (N.B.: I concede that Kant does occasionally talk this way.) Well, only in the sense that the intuitive content includes some representation of the (conceptually articulable) *general property* captured by the concept, instantiated in some way or other. Given that the relevant intuitive content must be conceptually articulable in principle in order to count as "containing" the concept, I see no way to insulate the "way" in which that content is instantiated from being likewise articulable in principle, in the form of lower concepts. Kant himself must have seen things the same way, since he clearly and repeatedly commits himself to the logical doctrine that there can be no *infima species* concepts on this basis of just this thought about the indefinite specifiability of conceptual content (see esp. A655–6/B 683–4; *Logic* § 11, Ak. 9: 97).

For Kant, then, it is part of the logical generality of conceptual content that a concept's domain, or extension, admit of at least potential conceptual articulation by specifying lower concepts. Since the content of lower concepts depended on higher ones as well, Kant looks to be committed to a qualified form of holism about conceptual content that renders concepts connected within the hierarchy *mutually* dependent on one another for their content.[40]

On reflection, this point was already implicit in the corrigibility mechanism sketched in section 13.2.2, where empirically forced corrections to some target concept (e.g., <tree>) were focused on certain partial notion(s) (e.g., <leaf>, <stem>) that were implicated in higher concepts analytically contained in the target. Viewed through the other end of the telescope, the same mechanism entails that the content of higher concepts (e.g., <plant>) and their marks (e.g., <leaf>) must themselves be rendered vulnerable to correction in and through the process of forming lower concepts. This is exactly as it should be. After all (the categories aside), the higher concepts involved in empirical concept formation are themselves *empirical* concepts. How else should we expect them to exhibit the vulnerability of their own content to what is given through experience than through the process of articulating the internal conceptual structure of that very empirical content through the specification of lower concepts? The same point turns out to be the source of the theoretical pressure (noted at the end of section 13.2.2) to refine the content of our higher general concepts through the process of determining lower concepts and thereby constructing a logically perfected system of concepts: without specification of lower concepts, we cannot be sure that the content of higher empirical concepts has been suitably corrected, and so we do not yet know what, exactly, we are saying in general about something by calling it (say) a plant.

In fact, the mutual dependence of higher and lower concepts turns out to be crucial for Kant's entire theory, for it suggests that, over the course of empirical theorizing guided by the regulative principles of systematic concept formation, the intensional content of a concept (expressed in its set of analytically contained marks) will eventually be brought into conformity with its extensional content (captured in the conceptually articulable experiences falling under it). As the system of empirical concepts is gradually perfected, these two sides of conceptual content, which we saw operating separately in Chapter 2, are brought together, resulting in the formation of a scientifically perfected empirical concept with definite content. Such a unification vindicates Kant's official critical definition of the concept in terms of a "function" for "ordering different representations under a common one" (A 68/B 93), which (we saw) smoothed over the difference between the concept understood intensionally (as a set of common marks), and the concept understood extensionally (as a function mapping together a class of lower representations and thence the domain of experience they

---

[40] The important qualification to the holism, as it seems to me, is that the holistic pressure exerted on the content of other concepts from some change in a given concept can only (on Kant's picture) be transmitted along the lines laid down by the logical structure of the system of concepts.

represent). On the flip side, the potential we observed in Chapter 2 for a disconnect between the two sides of conceptual content turns out to be a *feature*, not a bug, for it is by means of exactly such a disconnect that the content of experience can exert friction on the conceptual domain and shape the content of our concepts.[41] Kant was completely right to allow that <water> might preserve its identity through a change in marks on the strength of its "**designation**" (A 728/B 756) of a constant thing: only through such a process could our experiences with water *correct*, and thereby exert *shaping force*, on the intensional content of the concept (as they must if the concept is to be an empirical one). From an echt-Kantian point of view, then, all our ordinary empirical concepts ought really to be understood as provisional *bets*, which venture that a certain definite content (or something suitably close to it) will be one of those that finds a place in the genuinely scientific logical system of concepts that forms the ideal limit of this regulative course of inquiry, when the shape of experience has been taken into account, and the extensional side of conceptual content has been reconciled with the intensional side.[42]

Kant connects these points about the logical system of concepts directly to the problem of empirical concept formation in the two Introductions to the *Critique of Judgment*, when he brings the idea of systematicity to bear on understanding *reflection*. As Longuenesse (1998, 113–14n, 117, 163–6; 2005, 230–5) rightly notes, the third *Critique* notion of reflective judgment is intimately related to the characteristic logical

[41] Is the sensibly given intuitive content of experience that exerts this friction on concept formation itself conceptual, or non-conceptual, in the sense of recent debates? Philosophers influenced by McDowell are taken by the thought that it must be conceptual, because only conceptual content could exert a rational (as opposed to merely causal) constraint on upstream cognition, including concept formation. I am not confident that I fully understand either the nature or the force of the reasons for this position. A more Kantian way to understand the question, in my view, would be to ask whether the content in question is *essentially general*, in the sense explored in this and previous chapters. I think Kant's own answer to that question is clearly "No." Such sensory content, and the (informed) intuitive content to which it gives rise, is supposed to be particular, or singular. Nevertheless, as we have repeatedly seen (e.g., n. 39), Kant *does* think that such content is *conceptually articulable* in principle through a process of indefinite logical specification, and moreover, that absent that assumption, neither the generality of concepts itself nor the special sense in which intuitions can "contain" the concepts under which they fall would be so much as possible. Perhaps participants in current-day conceptualism/non-conceptualism debates would take this to be sufficient to count Kantian sensible and intuitive content as "conceptual" in their sense. If so, my view is that their debate is no longer making contact with Kant's own conception of the problem space, where the *logical* distinction between singularity and true logical generality is clearly supposed to do crucial work to sustain the concept/intuition distinction.

[42] Elsewhere, based on inspiration from Friedman (1992a, 1992b), I argue for a similar understanding of Kant's account of empirical causal laws; see Anderson (2002). The same basic idea also provides the key for developing a broadly Kantian response to another puzzle, which arises from Kant's admission of analyticities involving empirical concepts. The puzzle is that analyticities are supposed to be unrevisable a priori truths, but such truths depend on the content of the concepts they comprise, and the content of empirical concepts must, of course, be revisable. In short, the solution is that what Kant *ought* to have said about analyticities involving empirical concepts is that they are only unrevisable *in so far as* the concepts themselves carry a fixed content, because they are perfected scientific concepts with a definite place in the logical system of concepts produced by the regulative idea of theoretical systematicity. In so far as an ordinary empirical concept represents only a *bet* that its specific content will find a place in the ideal system, analyticities involving it are similarly (and on similar evidence) *wagered* to be unrevisable. For further discussion, see Anderson (2005).

act of reflection that plays the central role in empirical concept formation; in both cases, reflection begins from particular cognitions and seeks a general rule, or concept, that unifies them.[43] It should therefore come as no surprise when Kant insists that the "principle of reflection" in general must ensure that "for all things in nature empirically determinate **concepts** can be found" (*CPJ*, First Intro., Ak. 20: 211). Again relying on the idea that without systematic empirical concept formation, experience itself would be impossible, Kant formulates the needed a priori principle this way: "**Nature specifies its general laws into empirical ones in accordance with the form of a logical system, in behalf of the power of judgment**" (*CPJ*, First Intro., Ak. 20: 216).

Of course, the full argument for the a priori principle of judgment raises difficult issues about the relation between constitutive and regulative principles and the overall architectonic of Kant's theoretical philosophy, and I defer those to another occasion. For now, we can be satisfied with the observation that in making this argument, Kant assumes that an adequate account of concept formation will involve each of the key aspects involved in the present sketch: 1) a special role for the categories in constituting the objective structure of experience, making possible the representation of stable objective properties for reflection into empirical concepts (see *CPJ*, First Intro., Ak. 20: 212n); and 2) an interconnected "logical system" of such concepts, affording a structure against the background of which experiences can assume determinate significance for concept formation (see *CPJ*, First Intro., Ak. 20: 212n and 214–15, 216); along with, finally, 3) an assumption of (some degree of) uniformity in the content of experience itself sufficient for general concepts to have bearing on it, an assumption which Kant thinks must be underwritten through a (regulative) a priori principle (*CPJ*, First Intro., Ak. 20: 213).[44]

13.2.4 Outline sketch of a theory

At this point, it is well to pause to recap the main elements of the account of empirical concept formation developed here, and to gesture at how they meet the constraints identified in section 13.1.

Perhaps surprisingly, Kantian empirical concept formation is very much a top-down affair. It begins from the claim that experience is infused in advance, through the

---

[43] The connection between the logical act of reflection in concept formation and the more general operation of reflective judgment emerges most clearly in the more detailed presentation of the First Introduction. There, Section V is devoted to Kant's general account of reflection, and he construes it as the power "to compare and hold together given representations . . . in relation to a concept thereby made possible" (*CPJ*, First Intro., Ak. 20: 211), clearly evoking the operation of the logical act, even in the course of the account that is supposed to lead up to an explanation of the reflective judgment that moves from particular cognitions (already in judgment form) to discover a principle capable of unifying them.

[44] Even those skeptical of Kant's ambitious argument for an a priori regulative principle of systematicity can agree, I think, that some assumption playing this third role is needed, even if it has to be restricted to the more modest hypothetical claim that empirical concept formation will succeed *only in so far as* the natural properties revealed in experience exhibit sufficient regularity to provide evidence for stable general rules which can be reflected into concepts. On the question of whether the experiential content in question thereby counts as "conceptual," see nn. 39 and 41.

operation of a priori categories functioning as "concepts of an object in general" (B 128), with a conceptual structure that permits the representation of objects. It then takes over from Kant's philosophy of nature the assumption that it is possible to forge a highest empirical concept, <matter>, through a synthetic construction, guided by the categories, that unites a crucial group of empirical marks to yield a definite empirical specification of the a priori concept <object in general>. A similar, essentially synthetic process of connecting conceptual marks because they are bound together as belonging to the same *object* (represented as such with the help of the categories) also enters at later stages of concept formation and refinement. But once we have higher empirical concepts to work with, the process of concept formation no longer need involve the ambitious, metaphysically foundational construction of the sort deployed in the formation of <matter>, and incorporates a second key aspect instead. For the input from experiences can now assume conceptual form by being brought into contact with an emerging *logical system* of empirical concepts through specification and corrigibility of the sort described in the <tree> example (section 13.2.2). The inferential interrelations among concepts in that system are essential to their content and can be reconstructed in idealized form through a hierarchy. Against the background of such a logical system of concepts, further empirical concepts can be reflected from experience, and refined in response to it, under the assumptions 1) that sensory experience does in fact carry representational content[45] which can be rendered

---

[45] From the point of view of recent debates between conceptualists and non-conceptualists, it will likely be taken to be a strong assumption of my interpretation that sensory representations (including ultimately sensations) do carry intentional content. Occasionally, conceptualist interpreters will emphasize Kant's widespread remarks that sensations are merely subjective (i.e., pertain to the state of the subject rather than the object) in defense of their rejection of non-conceptual content in Kant. Even more remarkably, *non-conceptualist* readers often emphasize the same point (see Hanna 2005, 254; Allais, unpub. ms., 13), as part of arguments that are designed to establish that *intuitions* must be admitted as free-standing cognitive states with non-conceptual content. (Their motivation is to refute conceptualist claims—based on Kant's famous assertion of the interdependence of intuitions and concepts at A 51/B 75—that intuitions are not free-standing representational states, but exist only *as abstracted from* full cognitions with conceptual structure, from which conceptualists infer that intuitions provide no evidence for non-conceptual content in Kant. But if sensations have no objective purport at all, the non-conceptualist's thought goes, then the only representations capable of contributing empirical content/matter to cognitions are intuitions, and they must be admitted as free-standing carriers of non-conceptual content, on pain of there being no source for the empirical content of cognition.)

I concede that Kant routinely remarks that mere sensations pertain to the state of the subject and not to the object. But conceptualists and non-conceptualists alike dramatically over-read the intended implications of those remarks when/if they suggest that for Kant sensations do not contribute intentional content upwards into experience and empirical cognition at all. There are both textual and philosophical reasons to resist any such conclusion. The philosophical grounds are straightforward. Empirical cognitions have both form and matter for Kant, and while the form has a priori sources, the matter is supposed to come from experience. For human cognizers, all experience is sensible. Sensibility, too, has both form and matter, which are contributed forward into full cognition, and the forms of sensibility (space and time) are likewise a priori. The matter, by contrast, consists in (or anyway, is contributed by) sensations. But then, in so far as there is to be any empirical content for cognition at all, it must ultimately be introduced into cognition through sensations, which must themselves therefore *have* representational content to introduce. When Kant labels them as merely subjective, he has to be making a more limited point that emphasizes the contrast between such sensations and intuitions,

objective through categorial synthesis; and 2) that such content exhibits sufficient regularity to manifest some of its general patterns across a time scale accessible to a finite intellect. As Kant remarks,

Could Linnaeus have hoped to outline a system of nature if he had had to worry that if he found a stone that he called granite, this might differ in its internal constitution from every other stone which nevertheless looked just like it, and all he could hope to find were just individual things, as it were, isolated for the understanding, and never a class of them that could be brought under concepts of genus and species[?]   [*CPJ*, First Intro., Ak. 20: 215–16n]

This strategy for empirical concept formation avoids circularity by forming any given empirical concept on the basis of experiences together with conceptual structure provided by *other* concepts—viz., the a priori categories and the Ur-concept <object in general>, plus some higher empirical concepts from the hierarchy (and, of course, the background logical structure itself that articulates the content-based interdependence among concepts in the system). As a consequence, the strategy does not need to extract conceptual generality from the radically particular contents of intuition and sense; on the contrary, empirical concepts are formed by using content gleaned from sense to *specify higher concepts*, and full generality is thereby communicated down, deriving ultimately from a priori sources in the understanding itself, as the faculty of general rules, with its Ur-concept <object in general>. The mutual interdependence of conceptual contents built into the logical system, together with the categories' role in binding perceptual contents into representations of objects, address the corrigibility

[margin note: accounting for generality]

which incorporate much more substantial, object-implicating cognitive content, thanks to their a priori spatio-temporal form.
    The same conclusion emerges as a textual matter in the Introduction to the third *Critique*, when Kant distinguishes the sensations involved in cognition from the feeling of pleasure (which *genuinely does* carry no content whatsoever). Right after another of his remarks that "**Sensation** . . . expresses the merely subjective aspect of our representations," Kant goes on to mark a *contrast* between such cognitive sensations and the feeling of pleasure:

However, the subjective aspect in a representation **which cannot become an element of cognition at all** is the **pleasure** or **displeasure** connected with it; for through this I cognize nothing in the object of the representation . . .   [*CPJ*, Ak. 5: 189]

Kant's remark could only identify a *distinction* between cognitive/perceptual sensation and the feeling of pleasure on the condition that the former kind of sensation *does* carry representational content, which it (normally) contributes forward into cognitions of objects (as he in fact holds, just above: "the former [sensation] is likewise used for the cognition of objects outside us"; *CPJ*, Ak. 5: 189). Thus, according to the passage, there are *two kinds* of representations with this "subjective aspect"—one kind is the cognitive sensations, and the other kind is the feeling of pleasure, distinct from the first exactly because 1) it "**cannot become an element of cognition**" (whereas cognitive/perceptual sensations *can*, presumably); and 2) "through [pleasure] I cognize nothing in the object" (whereas, through cognitive/perceptual sensations, I must be able to, since "strictly speaking it expresses the material (the real) in them . . . and . . . is likewise [i.e., like the form = space] used for the cognition of objects outside us"; *CPJ*, Ak. 5: 189).
    It is therefore mistaken to conclude that for Kant sensations do not carry representational content at all; their "mere subjectivity" consists only in the fact that their content is *not yet* explicitly related to a concrete stable object, the successful representation of which has further preconditions (including most obviously space and time as the forms of intuition and the categories as concepts of an object in general).
    On the question of whether such sensory content is "conceptual" or not, see n. 41.

issue by affording experiential contents the leverage to force corrections in, and thus to provide shape to, the target concepts of reflection. Thus, our insights (via reflection) about *how* to specify higher concepts in response to experience, and how to adjust related concepts from the background system in response, can be constrained by the real contents of our experiences, even though the logical act of reflection retains an ineliminable element of insight, creativity, or even art, and can never be reduced to a mechanical procedure (see *CPJ*, First Intro., Ak. 20: 213–14). Precisely by ensuring constraint from the side of experience, finally, the ongoing process of concept formation tends, over the course of theorizing, to reconcile the content that fixes concept identity from an intensional point of view (by appeal to the marks it contains) with its content seen from an extensional point of view (the experiences it covers). It thereby vindicates Kant's critical definition of the concept as a general "function" (A 68/B 93), or mapping, that brings many representations together into one—many contained marks into a single concept, which unites many lower representations (both concepts and intuitions) under it.

   In sum, on this more frankly rationalist picture of Kant's theory, the *logical generality* of concepts descends from above (from higher, more abstract concepts) and never needs to be extracted from radically particular deliverances of sense. Conversely, concepts' *empirical content* can still be transmitted up from sensory experience, since their generality can never be fully understood independently of potential specification by lower concepts, which exposes them to empirical correction and thereby endows all empirical concepts with an essential corrigibility. Meanwhile, circularity is deftly avoided because the conceptual presuppositions for generalization and corrigibility are supplied not by the concept under formation, but instead by higher concepts from the background logical system.

13.3 Conclusion: Systematicity and Analyticity

In the outline just sketched, I grant a central place to the hierarchically structured logical system of concepts. In doing so, I take myself to be following the indications of Kant himself, who appeals to such a system in order to characterize the idea of systematicity in both the "Dialectic" Appendix and the Introductions to the third *Critique*. In both *loci*, Kant's argument wheels in such a logical system as a presupposition of empirical concept formation, which he then argues is a condition of the possibility of experience, implying that some transcendental ground for the logical system is a (regulative) condition for the possibility of experience. It might be felt, however, that this interpretation stands in tension with the role attributed to analytic concept hierarchies in earlier chapters. There they entered as the privileged logical representation for metaphysical systems in the mold of the Wolffian paradigm, which claim to express the full truth about the world in a system of analyticities—and which it was Kant's central goal, in the arguments explored in this book, to *reject*. Is Kant's own conception of systematicity subject to the same critique he levels against the systems of

his predecessors? Or was I wrong to interpret that critique as resting so heavily on the expressive limitations of analytic concept hierarchies?

The gist of my response to these questions is straightforward, but the matter sheds further light on the interpretation just outlined. In short, once we consider carefully the process of concept formation described earlier, it becomes clear that it would *not* yield a strictly analytic concept hierarchy.

The key point emerges right at the outset, with the essential role of the categories. As we saw, that role focuses on binding contents together so that they can represent objects, and such binding makes a fundamental contribution to concept formation by permitting *previously unconnected* conceptual marks to be joined into a newly formed concept on the strength of the coincidence of conceptually articulated properties in a (singular) object.[46] We encountered this role primarily in the discussion of corrigibility, where the link between conceptual marks instantiated in a novel perception was exploited to exert pressure on the content of concepts that were already inferentially related. But the same process can license reflection to join conceptual marks synthetically de novo in a concept under formation. The point is indicated in a remark from the Deduction about the concept <red> (B 133–4n). There Kant insists that, while any empirical concept does effect a unity of consciousness simply in virtue of its analytic containment relations (since it represents together a variety of possible representations falling under it, all of which contain the concept), any such "analytical unity of consciousness" remains parasitic on a prior *synthetic* unity of consciousness involved in the formation of the concept itself, whereby the marks contained in the concept were initially united. With some empirical concepts, of course, such syntheses may connect previously existing, but so far unconnected, empirical marks (for example, <blue> and <book> in the concept <bluebook>). More crucially, however, the case of the concept <matter> revealed that the guidance of the categories and the related (synthetic) a priori laws of nature can establish a deep, non-accidental, but nevertheless synthetic unification of the core marks of the highest empirical concept. Since lower empirical concepts in natural philosophy are all ultimately specifications of <matter>, the synthetic structure thereby built into that concept translates down the hierarchy in a way that prevents its counting as strictly analytic in the sense of the Wolffian paradigm. In addition, the interaction of the categorial synthesis with the role of higher concepts in the ongoing process of concept formation permits *further* synthetic structure to be added independently at lower points in the hierarchy all along the way.[47] For just

[46] Tellingly, this move mimics the same logical structure (in which conceptual marks are connected through being separately linked to the same object) that served as the key marker of essential syntheticity in our discussions of Kant's critique of metaphysics in Part IV.

[47] Here again, I concede that the description I am able to provide in this brief summary radically oversimplifies the complex theory Kant deploys in the background. For example, the categorial synthesis involved in the formation of the concept <matter>, and then again in the empirical formation of lower concepts, is mediated both by the transcendental principles of nature and by specific laws of nature, and, of course, important structural content enters our empirical concepts through the role of the forms of intuition as conditions of experience, as well. Treatment of these complex details, however, belongs to the positive

that reason, in discussing Kant's tree example and related topics I was careful to describe relations among concepts in the hierarchy neutrally as "inferential"; some such relations clearly are cases of analytic containment (for example, the relation between <tree> and <plant>), whereas others (for example, the relation between <branch> and <plant>) rely on synthetic connections.

Of course, *some parts* of the Kantian systematic hierarchy of concepts *will* conform to the strict requirements on the logical relations between concepts that ensure containment analyticity, and that is perfectly in order. After all, many significant inferential relations among concepts in the tree *are* analytic, and we even saw cases where such analytic containment played a key part in the process of concept formation itself—for example, in the formation of <tree> (in part) through logical specification of <plant>. As a consequence, the Kantian concept hierarchy inherits important logical structure from its analytic aspects, resulting not only in structural similarities to a strictly analytic, *merely* logical hierarchy, but also in real contributions to the process of concept formation from the side of analytic conceptual relations. One could say, analytic containment relations provide part of the "stiffness of structure" and articulation that give the content of experience resistance to press against, and thereby first allow it to yield *determinate* answers to theoretical questions (compare A 5/B 8–9). Such analytic relations thus supply a significant part of what is "essentially conceptual" about theoretical structure in a Kantian system.

All that said, the remaining possibility of categorially grounded *synthesis* uniting conceptual marks indicates a clear separation between the sort of systematic hierarchy of concepts that might be yielded through pursuit of Kantian concept formation under the regulative ideal of systematicity and the strict analytic hierarchies typical of the Wolffian paradigm. Such categorial syntheses will clearly result in a hierarchy that violates the division rules. For in cases of synthetic connections between pre-existing conceptual marks that are justified by the co-occurrence of properties in objects, there is nothing to restrict a given mark from entering into different parts of the tree in violation of the division rules—the concept <branch>, for example, might need to appear as what I have termed a "related partial concept" *both* in the treatment of <plant> and in the treatment of <river>—and in many other places, as well.

A final remark can serve to illuminate the systematic importance of the difference between the strictly logical division hierarchies proper to the Wolffian paradigm and the Kantian concept hierarchy rooted in systematic concept formation. Part of reason's demand on us, as we refine our conceptual structure in the service of systematic theoretical unity, is a call to bring our hierarchy of concepts *as close as possible* to a perfect logical hierarchy of the strictly analytic sort. This call takes the form of reason's regulative demands on the understanding 1) to seek a unifying genus for any two empirical natural kinds or powers (A 645–6/B 673–4, A 648–51/B 676–9); and 2) to

explanation of the possibility of synthetic knowledge from which I am trying to prescind in this sketch. (Thanks to Graciela de Pierris for discussion.)

seek further differentiating species of a kind even before they are given to us in experience (A 657/B 685). When viewed from the strictly logical side, such demands can be seen as a method for identifying as much analytic conceptual structure as possible, and thereby, as it were, "squeezing out" irreducibly synthetic relations exhibited within experience from the tight analytic framework, so that they can be made fully explicit—either through synthetic steps in concept formation, or through the determination of synthetic relations between one (internally) analytic sub-hierarchy and another, expressed in law-like statements relating key concepts from the separated trees. The consequent clear separation of analytic from synthetic structure in our overall theory is a major methodological advantage of the Kantian picture.

From reason's own point of view, however, her pressure in this matter is not intended as mere methodological suggestion, but as a *demand* made in the service of a certain vision of logical perfection, in which all concepts do stand in purely logical relation to one another. In such a perfect logical system, relations among concepts would not have the merely piecewise, distributive unity that the understanding can give them, but would have a genuine *collective* unity (A 644/B 672), in which the whole of the logical system preceded its individual concepts and determined each concept's logical place within itself (and thereby, the concept's content) on rational, logical grounds alone. This *vision* of reason is the slender moment of truth that Kant wishes to concede in the ambition of his rationalist predecessors: the systematic theory of nature should in fact be rational, and the ultimate ideal of reason would frame it as a purely logical affair.

As we have seen throughout this book, however, the expressive limitations on containment truth ensure that the vision of reason is "*only an idea*" (A 644/B 672; my emphasis). The perfect system of concepts resident in the divine intellect—or even built into the divine being itself under the aegis of an *omnitudo realitatis* idea with perfect internal logical form derived from an intrinsic collective unity—these ideas of reason can never attain to objective reality. They are, Kant insists, *imaginary*. Even when they enter to perform their legitimate theoretical roles (providing regulative theoretical guidance, assisting in concept formation), they must take the stage in the form of a "*focus imaginarius*—i.e., a point from which the concepts of the understanding *do not really proceed* [my emphasis] . . . [but which] nonetheless still serves to obtain for these concepts the greatest unity alongside the greatest extension" (A 644/B 672).

One last time, if metaphysics is ever to stop its mere groping around and enter the secure course of science, it must develop new methods to come to terms with the irreducibly synthetic structure of our impossibly messy, but rewardingly rich, empirical world. It must finally learn the lesson of the poverty of conceptual truth.