

Henry Allison and the B-Deduction

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HENRY E. ALLISON | *Kant's Transcendental Deduction. An Analytical-Historical Commentary* / Oxford: Oxford University Press, 2015

By Michael Friedman

Henry Allison's new book on *Kant's Transcendental Deduction* (2015) is a masterpiece, the best of all the excellent books that he has produced.^[1] It is, as its subtitle asserts, a true "analytical-historical commentary", beginning with Kant's work in the 1760s, continuing with the period of the *Inaugural Dissertation*, proceeding with the 'silent decade' of the 1770s, following with the A-Deduction and the relevant intervening writings between the two editions of the *Critique*, and concluding with two detailed and substantial chapters on the B-Deduction corresponding to its now generally accepted division into two parts, §§15–20 and §§21–7 respectively. There is nothing like it in the literature, and it is as illuminating as it is comprehensive.

It is my task today to focus on the issue between 'conceptualist' and 'non-conceptualist' readings of the B-Deduction and, in particular, on §26 and the notorious footnote at B160–1n. For I belong to the camp of 'moderate conceptualists', along with Béatrice Longuenesse, and therefore find myself in a camp opposing that of Allison. Before I turn to the details of §26 and its place in the B-Deduction, however, I want to explain a more general issue I have with Allison's reading concerning the way in which Kant sets up the problem that the Deduction is supposed to solve in a preliminary section to both editions (labelled "§13" in B), "On the principles of a transcendental deduction in general" (A84/B116).

After distinguishing, once again, between the two types of a priori "concepts" that "relate to objects [*Gegenstände*] completely a priori, namely, the concepts of space and time, as forms of sensibility, and the categories, as concepts of the understanding" (A85/B118), Kant, as is well known, articulates a sharp distinction between the two in relation to the problem of the Transcendental Deduction. In the case of the former:

We were able above to make comprehensible with little effort how these a priori cognitions must nevertheless necessarily relate to objects [*Gegenstände*], and made possible a synthetic cognition of them independently of all experience. For

since an object can appear to us only by means of such pure forms of sensibility, i.e., be an object [*Objekt*] of empirical intuition, space and time are thus pure intuitions that contain a priori the conditions of the possibility of objects [*Gegenstände*] as appearances and the synthesis in them has objective validity. (A89/B121–2)

Not so, however, in the case of the latter:

The categories of the understanding, by contrast, by no means represent the conditions under which objects are given in intuition, and thus objects can indeed appear to us without needing to relate necessarily to functions of the understanding, and thus [without] the understanding containing their a priori conditions. (A89/B122)

Kant proceeds, as is also well known, to illustrate this supposed possibility, and thus the problem that the Deduction is supposed to solve, with the concept of cause and effect:

[A]ppearances could after all be so constituted that the understanding would not find them in accordance with the conditions of its unity, and everything would then lie in such confusion that, e.g., in the succession of appearances nothing would offer itself that would furnish a rule of synthesis and thus correspond to the concept of cause and effect, so that this concept would therefore be entirely empty, nugatory, and without significance. Appearances would nonetheless offer objects [*Gegenstände*] to our intuition, for intuition by no means requires the functions of thinking. (A90/B123)

Kant then makes it clear, in the immediately following paragraph (A91–2/B123–4), that the problem in question is precisely that of (objectively) necessary causal connections—which Hume had famously called into question and Kant himself wants both to affirm and to explain.

For Allison, Kant’s discussion invites a confusion between two quite different kinds of necessity, the causal necessity in the illustration and what Allison calls the *normative* necessity “that appearances conform to *all* of the categories”:

Although Kant’s concern is clearly with the latter, the example explicitly appeals only to the former, thereby obfuscating the broader point, which is that the latter likewise cannot be accounted for by an appeal to the forms of human sensibility. (p. 188)

Since the problem of the Transcendental Deduction is to demonstrate the objective validity of all of the categories, it cannot be solved with reference only to the category of causality. And since causal necessity, by itself, does not pertain to all of the categories, a more general notion of necessity suitable for categories or a priori concepts of the understanding as such is, for Allison, then obviously required. Thus, after quoting from the paragraph on causally necessary connections cited above (A91/B124), Allison concludes:

Once again, however, the problem is that, even if one accepts Kant's account of the nature of the causal relation as involving necessary connection, it is not clear how this bears on the deduction of the categories, since that involves a normative rather than a causal necessity. (p. 191)

I think that Allison's qualms concerning Kant's illustration are missing something important—which, in particular, has significant implications for the interpretation of §26 of the B-Deduction. For, in the first place, Kant makes it clear in the immediately following section (which should have been labelled “§14” in B), “Transition to the transcendental deduction of the categories” (A92/B124), that the objective validity of the categories rests on the fact that they are conditions of the possibility of *experience* (*Erfahrung*). Kant again begins by disposing of the case of the conditions of sensible intuition relatively easily:

All appearances [...] necessarily agree with this formal condition of sensibility, because only through it can they appear, i.e., be empirically intuited and given. (A93/B125)

But we need quite different considerations in the case of the pure concepts of the understanding:

[W]ithout the presupposition [of such concepts] nothing is possible as **object** [*Objekt*] **of experience** [...]; consequently the objective validity of the categories, as a priori concepts, rests on the fact that through them alone is experience possible (as far as the form of thinking is concerned). For they then relate necessarily and a priori to objects [*Gegenstände*] of experience, since only by means of them can any object of experience be thought at all. (A93/B126)

In the following paragraph, Kant concludes that he has now found “a principle, towards which the entire investigation must be directed, namely this: that [all a priori concepts of the understanding] must be cognized as a priori conditions of the possibility of experience (whether of the intuition that is encountered in them or of the thinking)” (A94/B126). And the important point, in the second place, is

that Kant's notion of experience is a technical one. This, in fact, becomes especially clear in the reformulation of the (single) principle of the Analogies of Experience in the second edition:

Experience is possible only by means of the representation of a necessary connection [*notwendige Verknüpfung*] of perceptions. (B218)

Kant also explains, in a footnote added to the second edition discussion of the contrast between mathematical and dynamical categories and principles, that the relevant concept of necessary connection applies not only to the category of causality but to all the categories of relation—and, indeed, to the modal categories as well. Kant begins the note by asserting:

All **combination** [*Verbindung*] (*conjunctio*) is either **composition** [*Zusammensetzung*] (*compositio*) or **connection** [*Verknüpfung*] (*nexus*). (B201n)

Composition concerns the mathematical categories and principles (quantity and quality), connection the dynamical categories (relation and modality). And with respect to the latter, in particular, Kant says:

The latter combination (*nexus*) is the synthesis of the manifold [elements] in so far as they **necessarily** belong **to one another**, as, e.g. the accidents to any substance, or the effect to the cause. (B201n.)

Hence the concept of necessary connection is by no means limited to the category of causality but in fact extends to all the dynamical categories, beginning with those of relation. The Analogies of Experience (together with the Postulates of Empirical Thinking in General) *characterise* Kant's notion of empirical cognition or experience, and, in this sense, they constitute the goal towards which Kant's theory of the possibility of experience is directed. Experience, we might say, arises via a *transition* from perceptions to experience by means of the representation of a necessary synthetic connection (*Verknüpfung*) between the given perceptions. Just as only 'judgements of experience' are objectively valid in the *Prolegomena*, and arise from 'judgements of perception' by the addition of a pure concept of the understanding expressing necessity of connection, objectively valid judgements in the second edition of the *Critique* arise from perceptions (but not 'judgements' of perception) in a closely analogous fashion.

We have now arrived at an opening into the B-Deduction, namely, the pivotal §19 of the earlier part of the argument. This section concerns the "logical form of all judgements" (in general), which, Kant says, "consists in the objective unity of the apperception of the concepts contained therein" (B140). Kant has already

sharply distinguished between “objective” and “subjective” unity of self-consciousness in §18, and he here employs this distinction in a characterisation of judgement in general:

If, however, I investigate more closely the relation of given cognitions in every judgement, and distinguish this relation, as something belonging to the understanding, from the relation in accordance with laws of the reproductive imagination (which has only subjective validity), then I find that a judgement is nothing other than the way of bringing given cognitions to the **objective** unity of apperception. That is the aim of the copula **is** in them: to distinguish the objective unity of given representations from the subjective. For this word designates the relation of the representations to the original apperception and its **necessary unity**, even if the judgement is itself empirical, hence contingent, e.g., Bodies are heavy. (B141–2)

Allison, of course, discusses §19 at length, and, in particular, he rightly emphasises that the necessity of particular empirical judgements had already been discussed in the *Prolegomena* (as considered in an earlier chapter of his book). The example discussed in §22 of the *Prolegomena* concerned the explicitly causal judgement that the illumination of the stone by the sun causes it to become warm, and now, in his discussion of §19 of the *Critique*, Allison repeats his complaint concerning the narrow scope of specifically causal necessity:

We also saw [cf. p. 294], however, that here [§22 of the *Prolegomena*], as elsewhere, [Kant] confuses matters by choosing as his example a causal judgment, thus failing to distinguish between the kind of necessity attributed to every judgment of experience and the causal necessity affirmed in a causal claim. (p. 365)

Allison does not think that the example of bodies being heavy in §19 is subject to the same complaint, since this, he thinks, is an example of the normative necessity of concepts as rules—here the relevant rules governing the concept of body (which rules, although empirical, are ultimately grounded in the synthetic unity of apperception). Be that as it may, however, Allison thus appears again to miss the fact that Kant has a more general concept of synthetic necessary connection (*notwendige Verknüpfung*) common to all the categories of relation (and, indeed, all the dynamical categories), in this case the relation between a substance (a body) and one of its accidents (weight). So there is really no reason, in the end, to distinguish this example from the one in §22 of the

Prolegomena: both express what the *Prolegomena* calls ‘judgement of experience’, and both exhibit synthetic necessary connections in the sense of the second edition of the *Critique*.

But what exactly is the relationship between objectively valid empirical judgements, on the one side, and “the original apperception and its *necessary unity*” (B142), on the other? Kant continues his discussion of the predication of weight to bodies as follows:

By this, however, I do not intend to say that these representations belong **necessarily to one another** in the empirical intuition; rather, they belong to one another **in virtue of the necessary unity** of apperception in the synthesis of intuitions, i.e., in accordance with principles [*Prinzipien*] of the objective determination of all representations in so far as cognition can arise from them, which principles are all derived from the principle [*Grundsatz*] of the transcendental unity of apperception. Only in this way does there arise from this relation a **judgement**, i.e., a relation that is **objectively valid**, and that is sufficiently distinguished from the relations of these same representations in which there would be merely subjective validity, e.g., in accordance with laws of association. (B142)

Kant is here envisioning a rather complex procedure of objective determination of empirical judgements beginning with a priori principles. The highest such principle is that of “the synthetic unity of apperception” (§17) or “the original-synthetic unity of apperception” (§16). Lower and more specific a priori principles are then to be “derived” from this highest and most general principle. And the former, it seems, are just the synthetic a priori Principles (*Grundsätze*) of Pure Understanding—the Axioms of Intuition, Anticipations of Perception, Analogies of Experience, and Postulates of Empirical Thinking in General—discussed in the Second Book of the *Transcendental Analytic*. In accordance with the idea of a *transition* from perception to experience, from mathematical to dynamical categories and principles, it would then appear that objectively valid empirical judgements (e.g. “Bodies are heavy”) only fully emerge at the end of this complex procedure when we finally arrive at an objective necessary connection (*notwendige Verknüpfung*), in this case between subject and predicate. We thereby finally arrive at what Kant calls *experience*. (Allison himself says that the derived principles in question here are “the Principles of Pure Understanding, particularly the Analogies” [p. 366]. He does not add, however, that the necessary connections paradigmatically exemplified in the Analogies are constitutive of what Kant calls experience.)

Now Kant does not explicitly speak of a transition from perception to experience in the above quotation, but such a transition is rather clearly suggested in the continuation:

In accordance with [laws of association] I would only be able to say: If I carry a body, I feel a pressure of weight; but not: It, the body, is heavy, which is as much as saying that these two representations are combined [*verbunden*] in the object [*Objekt*], i.e., regardless of any difference in the condition of the subject, and are not merely [found] together in perception (no matter how often it may be repeated). (B142)

Although Kant does not appeal to the concept of experience here, he does distinguish subjective laws of association from the objective a priori laws of a nature in general in space and time (the Principles of Pure Understanding), and he insists that objectively valid empirical judgements must be grounded in the latter. Moreover, Kant's reference to "laws of association" and "perception" of constant conjunctions—"no matter how often it may be repeated"—echoes the anti-Humean argument of the *Prolegomena* and its explanation of how contingent "judgements of experience" may nonetheless involve necessary connection (*Prolog* §22, AA 4:305n.).

In the climactic §26 of the later part of the argument of B-Deduction, however, the idea of a transition from perception to experience, from the mathematical to the dynamical categories and principles, is very clearly and explicitly present. This section is entitled "Transcendental deduction of the universally possible employment in experience [*Erfahrungsgebrauch*] of the pure concepts of the understanding" (B159), and the transition from perception to experience is the crux of the argument in the main text. Kant begins the argument as follows:

I first remark that, under the **synthesis of apprehension**, I understand the composition [*Zusammensetzung*] of the manifold in an empirical intuition whereby perception, i.e., empirical consciousness of this [intuition] (as appearance), is possible. (B160)

And he concludes:

Therefore all synthesis, even that whereby perception is possible, stands under the categories, and, since experience is cognition by means of connected [*verknüpfte*] perceptions, the categories are conditions of the possibility of experience and are thus also valid for all objects of experience. (B161)

The two examples that follow and illustrate this conclusion involve the mathematical and dynamical categories respectively. The first (B162) involves the apprehension of the manifold of the empirical intuition of a house in order to make it into a perception via the application of the category of *quantity* (*Größe*). The second (B162–3) involves the perception of the freezing of water, wherein two states (of fluidity and solidity) stand in a relation to one another in time. This temporal relation can only be objectively *determined*, however, through the application of the category of *cause and effect* (*Ursache und Wirkung*) to the same perception. But, once again, the category of cause and effect is paradigmatic of the relational categories (and thus, more generally, of the dynamical categories). So we here have a paradigmatic case, for Kant, of how experience can be constituted from perception.

I should note, at this point, that Allison is perfectly clear about the importance of the transition from perception to experience in the principal argument of §26. The title of his long, detailed, and insightful Section V of the final Chapter 9—a section wholly devoted to §26—is “*Apprehension, perception, and experience*” (p. 406). Moreover, the title of the penultimate subsection D of Section V is “*From perception to experience*” (p. 423). Finally, beginning at the end of the preceding subsection (pp. 422–3) and continuing throughout subsection D (pp. 423–6), Allison is particularly sensitive to the distinction between mathematical and dynamical categories, including in the two examples just considered. Nevertheless, the problem for Allison’s account, from my point of view, arises when he despairs of finding a clear and coherent argumentative sequence in the principal argument of §26, which extends from the premise (or explication) concerning apprehension and perception (B160) to the conclusion concerning experience (B161) quoted in the penultimate paragraph above. One particularly important aspect of this problem, in my view, is that Allison’s discussion of the footnote to §26, in subsection B of his Section V (pp. 408–13), is prior to and largely independent of his treatment of the principal argument (to which it is a footnote), in subsections C and D (pp. 413–26), and, in my view, Allison thereby misses the way in which the footnote contributes to the argument.

So, in any case, I shall argue in what follows. But I first want to address a relatively minor subsidiary question that arises in Allison’s discussion of the second example (at B162–3) involving the perception of the freezing of water. Allison is concerned that this example, as Kant presents it, “further obfuscates matters” (p. 423), since causality, as a dynamical category, is supposed to be constitutive of experience, not of mere apprehension or perception. And, in this way, it “conflicts with the account in the Second Analogy” (p. 424). Once again, however, I think that Allison’s critical concern is misplaced, or at least overstated. It is true that Kant does not explicitly invoke the concept of *experience* in the

example, and so it contrasts, in this respect, with the two-paragraph introductory proof of the Second Analogy added in B (B233–4). However, Kant has just invoked the technical concepts of *connection* and *experience* (as opposed to mere perception) at the end of the principal argument itself (B161). And the way in which he speaks of “the category of *causality*, through which I *determine everything that happens in time in general in accordance with its relation*” (B163), makes it clear that dynamical objective time determination, in accordance with the Analogies of Experience, is precisely what is at issue. (Recall again the characterisation of *experience* at B218.)^[2]

With these clarifications (including note 2 above) of Kant’s discussion of his second example (B162–3) out of the way, I now turn to the principal argument of §26 (B160–1). After the premise or explication concerning apprehension, composition, and perception (B160), Kant notes:

We have **forms** of outer and inner sensible intuition a priori in the representations of space and time, and the synthesis of apprehension of the manifold of appearance must always be in agreement with these representations, because it [the synthesis of apprehension] itself can only occur in accordance with this form. (B160)

This, of course, is relatively unproblematic, because space and time are the a priori forms of all our sensible intuitions and thus must directly apply to them. We are concerned, in other words, with the easier part of Kant’s explanation of the possibility of cognition, which concerns only the a priori contribution of our pure forms of sensibility rather than that of the pure concepts of the understanding: compare Kant’s preliminary remarks (at A89–90/B121–3) discussed at the beginning.

The following sentence, however, introduces a new distinction:

But space and time are represented a priori, not merely as **forms** of sensible intuition, but as **intuitions** themselves (which contain a manifold) and thus [represented a priori] with the determination of the **unity** of this manifold in them (see the Transcendental Aesthetic). (B160)

The attached footnote, among other things, then glosses the distinction as one between “*form of intuition*” and “*formal intuition*” (B160n.). This new distinction, however glossed, constitutes the crux of the principal argument of §26, in so far as it propels the argument from its relatively unproblematic beginnings towards its comprehensive conclusion that the categories (all of them) are conditions of the possibility of experience—the very conclusion, as we have seen, which is also that of the Transcendental Deduction itself.

The difficulty, of course, is to understand Kant's distinction, and there is no better way of approaching it than in terms of its role in the deduction as a whole. Its role in the principal argument of §26 (B160–1), at least at first sight, is relatively clear. It serves to introduce the understanding into the argument via the idea that “*intuitions themselves*” are represented “with the determination of the *unity* of this [spatio-temporal] manifold in them” (B160). Kant then infers that synthetic unity, resulting from combination by the understanding, must be given together with the intuitions themselves in all apprehension:

Therefore, **unity of the synthesis** of the manifold, outside us or in us, and thus a **combination** [*Verbindung*] with which everything that is to be represented in space or time as determined must accord, is itself already a priori given simultaneously, with (not within) these intuitions [i.e. space and time as ‘intuitions themselves’], as condition of the synthesis of all **apprehension**. (B160–1)

The original-synthetic unity of apperception, as first introduced in §§16–17 of the earlier part of the deduction, must, together with the categories, then apply:

But this synthetic unity can be no other than that of the combination [*Verbindung*] of the manifold of a given **intuition in general** in an original consciousness, in accordance with the categories, only applied to our **sensible intuition**. (B161)

And from this the conclusion that the categories are conditions of the possibility of *experience* is now supposed to follow.

It is by no means transparent, however, exactly how the conclusion is supposed to follow. In order to address this situation, therefore, I return to the crucial sentence introducing the distinction between “*forms of sensible intuition*” and “*intuitions themselves*,” which, I have suggested, propels the rest of the argument. I begin with the parenthetical citation of the Transcendental Aesthetic at the end of the sentence, and I reserve for later a discussion of the appended footnote (which, if anything, is even more difficult and controversial than the argument in the main text). My first, relatively uncontentious point is simply that this reference back to the Transcendental Aesthetic is *prima facie* puzzling in view of the sharp distinction Kant draws between the easier part of his explanation of the possibility of cognition, involving the a priori contribution of our pure forms of sensibility, and the much harder task of the deduction itself. Since only the former has been addressed in the Aesthetic, why is Kant now citing this part of the *Critique* for a seemingly crucial premise of the transcendental deduction of the categories? The appended footnote, it appears, is meant to respond to this *prima facie* puzzlement.

My second point, although equally uncontentious, has not always been emphasised sufficiently: namely, there is a parallel reference back to the Aesthetic in §17 of the earlier part of the B-Deduction, entitled “The principle [*Grundsatz*] of the synthetic unity of apperception is the highest principle [*Prinzip*] of all use of the understanding” (B136). This section begins:

The highest principle of the possibility of all intuition in relation to sensibility was, according to the Transcendental Aesthetic, that all the manifold [of sensibility] stands under the formal conditions of space and time. The highest principle of precisely the same [viz. “all intuition”] in relation to the understanding is that all the manifold of intuition stands under conditions of the original-synthetic unity of apperception. (B136)

Kant here appears to be adding something to what had already been said in the Aesthetic. It is not only the case that all intuitions of our sensibility stand under the a priori conditions of space and time, but these same intuitions (as representations of ours) also stand under the original-synthetic unity of apperception.

The situation becomes even more interesting when we consider Kant’s footnote attached to the second sentence of the above-quoted passage:

Space and time and all of their parts are **intuitions**, thus singular [*einzelne*] representations along with the manifold contained within them (see the Transcendental Aesthetic); they are therefore not mere concepts, through which precisely the same consciousness is contained within many representations, but rather many representations that are contained within one and in the consciousness of it, thus as composite; hence the unity of consciousness is to be found [here], as **synthetic**, but still original. This **singularity** [*Einzelheit*] of theirs is important in the application (see §25). (B136n.)

The footnote here appears to be closely connected with the argument of §26, not only by its explicit reference back to the Aesthetic for an important premise, but also by its reference forward to the use of the relevant property of *singularity* “in the application” — where Kant’s “§25” is likely a misprint for “§26”. And, in these circumstances, we can then use the footnote to §17 (B136n.) as at least a partial indication of which passages Kant is appealing to in the parallel explicit reference back to the Aesthetic in §26 (B160). (Allison himself is completely on board with this way of proceeding: see pp. 349–50.)

It seems quite clear that the passages in the Aesthetic referred to in the footnote to §17 are the third and fourth arguments in the Metaphysical Exposition of the concept of space in the second edition, where Kant is distinguishing the

representation of space from conceptual representations via their different mereological properties. The crux of the first of these arguments is as follows:

[F]irst, one can only represent to oneself a single [einigen] space, and if one speaks of many spaces, one understands by this only parts of one and the same unique [alleinigen] space. And these parts cannot precede the single all-encompassing [einigen allbefassenden] space, as it were as its constituents (out of which a composition [Zusammensetzung] would be possible); rather, they can only be thought **within it**. It is essentially single [einig]; the manifold within it, and the general concept of spaces as such, rests solely on limitations. (A25/B38)

Space is a single, all-encompassing whole that precedes all of its constituent parts or regions. The “general concept of spaces as such” applies to each of these constituent parts or regions, but only in virtue of a process of limitation whereby the constituent parts (e.g. a number of different cubic feet of space) are “carved out” of the single and unique whole of space by delineating their boundaries. In this sense, therefore, the whole always precedes its parts, and the intuition (the singular whole) is prior to the relevant general concept.

According to the second of these arguments (the fourth in the *Metaphysical Exposition* in the second edition), there is an opposite whole-part priority in the case of general concepts:

Space is represented as an infinite **given** magnitude. Now one must certainly think every concept as a representation that is contained in an infinite aggregate of different possible representations (as their common mark), and it therefore contains these **under itself**. But no concept, as such, can be so thought as if it were to contain an infinite aggregate of representations **within itself**. However space is thought in precisely this way (for all parts of space **in infinitum** exist simultaneously). Therefore, the original representation of space is an a priori **intuition**, and not a **concept**. (B39–40)

In the traditional logical tree or hierarchy employed by Kant concepts have both an *extension* consisting of all lower concepts in the hierarchy (which are thus contained under it) and an *intension* consisting of all higher concepts (which are thus contained within it). In this sense, therefore, the parts of a concept (marks or partial concepts) always precede the whole, and, since the hierarchy is always finite in the upward direction, no concept can possibly contain an infinite aggregate of parts *within* itself.

The argument of the footnote to §17, it is clear, depends on these oppositely directed mereological properties. Since, however, it is illustrating the way in which “all the manifold of intuition stands under conditions of the original-

synthetic unity of apperception” (B136), the argument also essentially depends on the unity of *consciousness*. The parts of space (and time) are “not mere concepts, through which precisely the same consciousness is contained within many representations, but rather are many representations that are contained within one and in the consciousness of it” (B136n). And, since the unity of consciousness in the case of general concepts is what Kant calls an “analytic unity of consciousness” (§16, B133n.), it makes perfect sense that the oppositely directed unity of consciousness in the case of spatio-temporal intuition is “*synthetic*, but still original” (B136n.).

The burden of §16 as a whole is to show that “the *analytic* unity of apperception is possible only under the presupposition of some *synthetic* one” (B133). What we seem to have just learned in §17, therefore, is that the latter can be found only in an *intuitive* representation, which, in particular, exhibits whole-part priority in its unity of consciousness. Thus, the remainder of the first paragraph of §17, immediately after the sentence to which the footnote is appended, continues as follows:

All the manifold representations of intuition stand under [the highest principle of the possibility of all intuition in relation to sensibility] in so far as they are **given** to us, and under [the highest principles of all intuition in relation to the understanding] in so far they must be capable of being **combined** [*Verbunden*] in a consciousness; for without that nothing can be thereby thought or cognized, because the given representations would not have the act of apperception, I **think**, in common, and would not thereby be grasped together [*zusammengefaßt*] in a self-consciousness. (B136–7)

The upshot seems to be that it is only in so far as all the manifold representations of our spatio-temporal intuition stand under the original-synthetic unity of apperception, and are thereby grasped together in a single self-consciousness, that these representations are then *capable* of being synthetically combined together within this same self-consciousness: compare the second paragraph of §15 (B130–1), which introduces the explicit appearance of the original-synthetic unity of apperception in §16.

Returning again to §17, the next two paragraphs after those discussed so far are also of great interest. In the first of these paragraphs Kant introduces his well-known characterisation of *cognition* and its relation to *objects*:

Understanding, generally speaking, is the faculty of **cognitions**. The latter consist in the determinate relation of given representations to an object [*Objekt*]. But an **object** [*Objekt*] is that in the concept of which the manifold of a given intuition is **united** [*vereinigt*]. Now all unification [*Vereinigung*] of representations

requires unity [*Einheit*] of consciousness in their synthesis. Therefore, the unity of consciousness is that which alone constitutes the relation of representations to an object [*Gegenstand*], and thus their objective validity, and consequently that they are cognitions, and on which, therefore, even the possibility of the understanding rests. (B137)

In the following paragraph, however, Kant provides an illustration of this characterisation that is both intriguing and puzzling. He considers the unification of a given spatial manifold under the concept of a line (segment), whose object is just the determinate spatial figure (the determinate line segment) thus generated:

[T]he mere form of outer sensible intuition, space, is not yet a cognition at all; it provides only the manifold of a priori intuition for a possible cognition. In order to cognize anything in space, e.g., a line, I must *draw* it, and therefore bring into being synthetically a determinate combination of the manifold, in such a way that the unity of this action is at the same time the unity of consciousness (in the concept of a line), and only thereby is an object (a determinate space) first cognized. (B137–8)

This example makes sense, in the context of Kant's earlier discussion in §17, because the mere form of spatial intuition, as such, has not yet been brought under the original-synthetic unity of apperception. At the same time, however, the example is also quite puzzling. For, according to Kant's explicit discussion in the later part of the B-Deduction, a geometrical construction in pure intuition is not yet a cognition either.

The relevant discussion in the later part of the Deduction occurs in §22, entitled "The category has no other use for the cognition of things than its application to objects [*Gegenstände*] of experience" (B146). This section, like the rest of the sections in the later part, is restricted to *our* sensible intuition (i.e. spatio-temporal intuition), and so does not extend to what Kant, in the earlier part, calls "objects of an intuition in general" (whether the form of this intuition be spatio-temporal or some other). Kant begins by considering the distinction, within our spatio-temporal intuition, between pure and empirical intuition, and the relevance of this distinction to mathematics:

[A]ll intuition possible for us is sensible (Aesthetic), and thus the thought of an object in general by means of a pure concept of the understanding can only become cognition for us in so far as this [concept] is related to objects of the senses. Sensible intuition is either pure intuition (space and time) or empirical intuition of that which is immediately represented as actual [*wirklich*] in space and time via sensation. By means of determination of the former [pure intuition] we can acquire a priori cognitions of objects (in mathematics), but only in

accordance with their form; whether there can be things that must be intuited within this form remains thereby still unsettled. Consequently, no mathematical concepts are by themselves cognitions, except in so far as one presupposes that there are things which can only be presented to us in accordance with this pure sensible intuition. (B146–7)

In the remainder of the paragraph (and thus of the entire section) Kant then makes it crystal clear that spatio-temporal appearances, given to us via *empirical* intuition, are the only possible objects of mathematical (or any other) cognition, so that the relevant objects, in particular, are necessarily objects of *experience*:

Things within space and time, however, are only given in so far as they are perceptions (representations accompanied with sensation), and thus by means of empirical representation. Therefore, the pure concepts of the understanding, even when they are applied to a priori intuitions (as in mathematics), only provide cognition in so far as these [a priori intuitions], and thus also the concepts of the understanding by means of them, can be applied to empirical intuitions. Consequently, the categories can also provide no cognition of things by means of intuition except via their possible application to **empirical intuition**, i.e., they serve only for the possibility of **empirical cognition**. But the latter is called **experience**. Hence the categories have no other use for the cognition of things except in so far as they are taken as objects of possible experience. (B147–8)

Thus Kant not only makes it clear that the categories only have real application to objects of possible experience. He also makes it clear that a transition from perception, by means of which things in space and time are first given, to experience, by means of which these same things are then cognised, is crucial to the application of the categories (at least within *theoretical* cognition: compare the footnote at Bxxvi n.).

This entire discussion is particularly important, from the present point of view, because it clarifies the sense in which *all* of the categories, not just the dynamical categories, have objective validity only as conditions of the possibility of experience. The dynamical categories are such conditions by definition, as it were, since *experience*, in Kant's technical sense, arises only from a necessary connection (*Verknüpfung*) of perceptions. But the mathematical categories, we now see, are valid only as conditions of the possibility of experience as well. The categories of quality have this kind of validity, because only thereby do we have a perception in the first place (and not simply a mere sensation). And the categories of quantity have it as well, since they are involved in all properly

mathematical thinking, for Kant, and mathematical concepts themselves are only cognitions in so far as they, too, are eventually applicable to objects of experience.

As I have explained, the example in §17 of the construction of a line (segment) in pure intuition is not yet a cognition by itself and, indeed, not yet a perception either. Nevertheless, when I apply the categories of quantity to the perception of a house (in the first example following the principal argument of §26)—in so far as “I draw, as it were, its figure [*Gestalt*] in accordance with the synthetic unity of the manifold in space” (B162)—I now have something (a spatial perception) that *can* be further determined in accordance with the Analogies of Experience. This happens, for example, in the case of the famous discussion distinguishing between the perceptions of a house and those of a ship floating downstream in the Second Analogy (A190–3/B235–8). While the changing perceptions of the house (unlike those of the ship) do not amount to the experience of a sequence of alterations in the object itself, they still constitute a temporally extended objective experience resulting from the changing perspectival relations between the object (the house) and the observer (myself).

A further important point emerges from the discussion of mathematics and cognition in §22. While it is certainly true that mere mathematical constructions in pure intuition do not, by themselves, count as either cognitions or perceptions, they still play a crucial role, for Kant, in contributing to both the constitution of experience and (therefore) the application of the categories. This is strongly suggested, in particular, by one of the last sentences from §22 quoted above:

[T]he pure concepts of the understanding, even when they are applied to a priori intuitions (as in mathematics), only provide cognition in so far as these [a priori intuitions], **and thus also the concepts of the understanding by means of them**, can be applied to empirical intuitions. (B147, emphasis added)

In the Axioms of Intuition, moreover, Kant makes the point even more explicitly. He is arguing that “pure mathematics, in its complete precision, [is] applicable to objects [*Gegenstände*] of experience” (A165/B206), and he goes on to explain:

The synthesis of spaces and times, as the essential form of all intuition, is that which, at the same time, makes possible the apprehension of appearance, and thus every outer experience, and consequently all cognition of its objects; and what mathematics in its pure use demonstrates of the former is also necessarily valid for the latter. (A165–6/B206)

It is not yet clear, however, exactly why such mathematical constructions in pure intuition (in geometry, for example) are necessary for the constitution of experience. And it is not yet clear, more specifically, why and how such constructions in pure intuition are necessarily involved in the application of *all* of the categories (not just the mathematical categories).

Section 22 of the B-Deduction is followed by §23, which emphasises a negative moral concerning the boundaries of the use of the pure concepts of the understanding following from the proposition demonstrated in §22. This proposition, according to §23, “determines the boundaries [*Grenzen*] of the use of the pure concepts of the understanding in regard to objects [*Gegenstände*], just as the Transcendental Aesthetic determined the boundaries of the use of the pure form of our sensible intuition” (B139). The following §24, however, turns to the positive task of explaining “the application of the categories to objects [*Gegenstände*] of the senses in general” (B150). And here, it appears, Kant’s explanation of this central element in the Deduction as a whole involves a necessary interaction between the synthetic unity of apperception, as discussed in the earlier part of the B-Deduction, and the role of the pure spatio-temporal formal structure of our (human) sensible intuition, as emphasised in the later part.

The crux of Kant’s explanation is given in a single long sentence:

Since in us, however, a certain form of a priori sensible intuition lies at the basis, which rests on the receptivity of our representational capacity (sensibility), the understanding, as spontaneity, can determine inner sense via the manifold of given representations in accordance with the synthetic unity of apperception, and thus think synthetic unity of apperception of the manifold of a priori **sensible intuition**, as the condition under which all objects [*Gegenstände*] of our (human) intuition must necessarily stand, by means of which the categories, as mere forms of thought, then acquire objective reality, i.e., application to objects, which can be given to us in intuition, but only as appearances; for only of the latter are we capable of a priori intuition. (B150–1)

A clear implication of this passage appears to be that the purely intellectual unity of apperception of a manifold of intuition in general, as discussed in the earlier part of the B-Deduction, does not by itself provide the categories with objective reality (real possibility)—for, as Kant says at the beginning of §24, they are then “mere *forms of thought*, whereby no determinate object is yet cognized” (B150). And a second implication appears to emerge in the final clause of the first-quoted passage, according to which “only of the latter [*viz.* appearance given within our sensibility] are we capable of a *priori* intuition” (B151, emphasis added). It

appears, in particular, that a priori intuitions of *our* sensibility (as paradigmatically generated in mathematics) are needed to mediate the necessary relationship between our understanding and the objects of our (spatio-temporal) sensibility, as already suggested in the sentence quoted (also with added emphasis) from §22 above (B147).

To be sure, unlike in the passage from §22, there is no explicit mention of mathematics in the corresponding passage from §24 (B150–1). However, Kant goes on to discuss what he calls the “*figurative synthesis (synthesis speciosa)*” or “*transcendental synthesis of the imagination*” (B151), which is an “action [*Wirkung*] of the understanding on sensibility and its first application (and simultaneously the ground of all the rest) to objects [*Gegenstände*] of an intuition possible for us” (B152). In particular, the original synthetic unity of apperception acts on our form of inner sense, and thereby *determines* this form, while, at the same time, remaining quite distinct from it:

Apperception and its synthetic unity is so far from being the same as inner sense, that the former, as the source of all combination [*Verbindung*] applies, prior to all sensible intuition, to objects [*Objekte*] in general, to the manifold of **intuitions in general**, under the name of the categories; inner sense, by contrast, is the mere **form** of intuition, but without combination of the manifold within it, and thus contains no **determined** intuition at all, which is only possible by means of the consciousness of its determination via the transcendental action [*Handlung*] of the imagination (synthetic influence of the understanding on inner sense) that I have called figurative synthesis. (B154)

Kant then proceeds to illustrate the action in question by precisely the generation of pure geometrical figures in space and time:

This we also always observe [*wahrnehmen*] in ourselves. We can think no line without **drawing** [*ziehen*] it in thought, no circle without **describing** [*beschreiben*] it; we can in no way represent the three dimensions of space without **setting** [*setzen*] three lines perpendicular to one another from the same point; and we cannot even represent time without, in the **drawing** [*Ziehen*] of a straight line (which is to be the outer figurative representation of time), attending merely to the action [*Handlung*] of the synthesis of the manifold through which we successively determine inner sense, and thereby attend to the succession of this determination in it. (B154)

Thus even the original determination of inner sense, Kant suggests, takes place via geometrical construction executed within both outer and inner sense, that is, within our *spatio-temporal* pure intuition.

I am now in a position to begin my discussion of the problematic footnote to §26, together with its relevance for the principal argument of this section. The footnote consists in the three following sentences:

Space represented as **object** [*Gegenstand*] (as is actually required in geometry) contains more than the mere form of intuition—namely, [it contains a] **grasping together** [*Zusammenfassung*] of the manifold, given in accordance with the form of sensibility, in an **intuitive** representation, so that the **form of intuition** gives merely a manifold, but the **formal intuition** gives unity of representation. In the Aesthetic I ascribed this unity to sensibility, only in order to remark that it precedes all concepts, although it in fact presupposes a synthesis that does not belong to the senses but through which all concepts of space and time first become possible. For, since through it (in that the understanding determines sensibility) space or time are first **given** as intuitions, the unity of this a priori intuition belongs to space and time, and not to the concept of the understanding (§24). (B160–1n)

Thus, once again, the footnote is addressed to the reference back to the Aesthetic in the main text, and, as we now see, it concludes with a reference back to §24. This makes it plausible that the considerations we have just been reviewing, beginning with the parallel reference back to the Aesthetic in §17, continuing with the related discussion of mathematics and experience in §22, and concluding with the treatment of the application of the categories to objects (*Gegenstände*) of our senses in general in §24, are all relevant in the footnote to §26.

It is by no means surprising, therefore, that Kant mentions (parenthetically) the science of geometry at the beginning of the first sentence, for, as we have seen, geometry and geometrical construction is a central and recurring theme in the considerations we have just been reviewing (from §17 through §22 to §24). But the reference to geometry here in §26, as involving the representation of space as *object*, leads to an important ambiguity and thereby to a controversy. Is Kant referring here to the single and all-encompassing whole of space as such an object, or is he rather referring to individual geometrical figures, e.g. triangles, constructed within this space? And, correspondingly, does Kant mean to characterise the single and all-encompassing whole of space as a formal intuition, or rather the individual geometrical figures constructed (as parts or regions) within this space? (Allison, we should note, opts for the latter reading [p. 412], and I shall return to this below.)

Now there is no doubt that Kant typically has in mind determinate finite geometrical figures as objects of geometry—as in the example of constructing a determinate line segment in §17, or, analogously, that of a triangle in the Axioms of Intuition (A164–5/B205). Yet it also seems clear that space and time in the singular are the referents of “formal intuition” in the footnote. Kant here speaks of “concepts of space” in the plural, but of “space” and/or “time” always in the singular. Further, space and time are complementary to the corresponding (not yet unified) forms of intuition, which are certainly singular, and they result from the latter via a “determination” by the understanding. It is through such determination that “space or time are first *given* as intuitions” (B161n.), that is, “as *intuitions* themselves” (B160) in the sense of the main text.

In addition, there is precedent for Kant considering space itself as an object in the “Transcendental exposition of the concept of space” added to the second edition, immediately following the third and fourth arguments of the Metaphysical Exposition. Kant here states, in particular, that “[g]eometry is a science that determines the properties of space synthetically but still a priori” (B40), and gives as an example of such determination the “proposition” that “space has only three dimensions” (B41). Three-dimensionality is here being predicated of space as a whole, not simply of finite regions of space, and so it would certainly seem, for Kant, that space, in this sense, can be treated as a singular object for which various properties can be determinately judged to hold or not to hold.

Space understood as a single all-encompassing whole plays an essential role in the argument of this section (B40–1), which is to show that space being an a priori form of intuition is the only tenable explanation of the possibility of the a priori geometrical cognition that, for Kant, we undoubtedly have:

Now how can an outer intuition inhabit the mind, which precedes the objects [*Objekten*] themselves, and within which the concept of the latter can be determined a priori? Obviously not otherwise than in so far as it has its seat merely in the subject, as its formal constitution for being affected by objects [*Objekten*], and thereby acquiring **immediate representation** of them, i.e., **intuition**, and thus only as the form of outer **sense** in general. (B41)

Note that the “objects” in question are *empirical* objects or appearances, not mere geometrical constructions: they affect our senses and thereby result in perceptions. So Kant is here considering what we would call *applied* or *physical* geometry rather than the pure *mathematical* geometry developed in Euclid. Space, for Kant, is necessarily three dimensional (B41), and, more importantly,

every outer empirical object or appearance, for Kant, is thereby necessarily connected to every other such object within space by determinate (or at least determinable) quantitative relations:

By means of outer sense (a property of our mind) we represent to ourselves objects [*Gegenstände*] as outside us, and one and all **within space**. Within [space] their figure, magnitude, and relation [*Verhältnis*] to one another is determined, or determinable. (A22/B37)

This last quotation from the very beginning of the Metaphysical Exposition of space (§2) makes it clear that space, for Kant, not only serves as a vehicle for pure mathematics (which, by itself, does not yet amount to cognition). Space rather serves, first and foremost, as a vehicle for what we would now call applied mathematics, and, as such, it contributes towards the constitution of a unified and all-comprehending determination of the objects of what Kant calls experience. Thus, when Kant, at the end of the Transcendental Exposition (§3), claims to have given the only tenable “explanation of the *possibility of geometry* as a synthetic a priori cognition” (B41), he means that space, in his sense, thereby becomes an important part of the explanation of the possibility of experience. For, as we have seen, *experience*, for Kant, is essentially synonymous with *empirical cognition*. It is for this reason that, after the deduction is completed, Kant can confidently assert in the Axioms of Intuition (as we have also seen) that “[*the synthesis of spaces and times, as the essential form of all intuition, is that which, at the same time, makes possible the apprehension of appearance, and thus every outer experience, and consequently all cognition of its objects*” (A165–6/B206, emphasis added). (Of course Kant is here considering both space and time, just as he does in §26, and I shall return to this circumstance below.)

It is important to emphasise, at this point, that experience, for Kant, differs from mere perception in so far as it involves what I have called a unified and all-comprehending determination of its objects. For Kant, the highest principle [*Principium*] of all synthetic judgements is:

[E]very object [*Gegenstand*] stands under the conditions of the synthetic unity of the manifold of intuition in a possible experience. (A158/B197)

A few pages earlier, moreover, he puts special emphasis on the contrast between experience and mere perception:

The **possibility of experience** is therefore that which gives all of our cognitions objective reality. Now all experience rests on the synthetic unity of appearances, i.e., on a synthesis in accordance with concepts of the object of appearances in

general, without which it would not even be cognition, but rather a rhapsody of perceptions, which would not fit together in any context in accordance with rules of a thoroughly connected [*durchgängig verknüpften*] (possible) consciousness, and thus not into the transcendental and necessary unity of apperception. (A156/B195)

Kant further distinguishes between perception and experience in the proof of the (single) principle of the Analogies of Experience in the second edition:

Experience is an empirical cognition, i.e., a cognition that determines an object [*Objekt*] by means of perceptions. It is thus a synthesis of perceptions, which is not itself contained in perception, but rather contains the synthetic unity of their manifold in a consciousness, which constitutes what is essential in a cognition of the **objects** [*Objekte*] of the senses, i.e., experience (not merely the intuition or sensation of the senses). (B218–9)

Kant goes on to argue that perceptions, as such, come together only contingently, “since apprehension is only a placing together of the manifold of empirical intuition, but no representation of the necessity of the combined existence [*verbundenen Existenz*] in space and time of the appearances that it places together is to be found in it” (B219).

Hence, as Kant explains at the end of his discussion of all three Analogies, the unity of time determination that they provide eventually involves determinate positions in time (and space) for each and every appearance:

This unity of time determination is thoroughly dynamical, i.e., time is not viewed as that wherein experience immediately determines a position for each existent [*Dasein*], which is impossible, because absolute time is not an object [*Gegenstand*] of perception, wherein appearances could be held together; rather, the rule of the understanding, through which alone the existence [*Dasein*] of appearances can acquire unity in accordance with temporal relations [*Zeitverhältnissen*], determines for each of [the appearances] its place within time, and thus [determines it] a priori, valid for each and every time. (A215/B262)

Kant concludes, in the following paragraph, that the Analogies thereby express the all-comprehending unity of nature:

Our analogies therefore properly present the unity of nature in the interconnection [*Zusammenhänge*] of all appearances under certain exponents, which express nothing other than the relation of time (in so far as it comprehends all existence within itself [*alles Dasein in sich begreift*]) to the unity of apperception, which can only take place in synthesis according to rules. Together

they therefore assert that all appearances lie within one nature [*in eine Natur*], and must lie within in it, because without this a priori unity [*Einheit*] no unity of experience, and thus no determination of the objects within it, would be possible. (A216/B263)

It is by no means surprising, therefore, that Kant also emphasises nature and the laws of nature in §26 of the B-Deduction. The first paragraph of this section, for example, describes what still has to be explained:

Now the possibility is to be explained of cognizing a priori, **by means of categories**, whatever objects [*Gegenstände*] **may present themselves to our senses**, not, indeed, with respect to the form of their intuition, but with respect to the laws of their combination—and thus to prescribe the law to nature and even make nature possible. For if the categories did not serve in this way, it would not become clear how everything that may ever come before our senses must stand under laws that arise a priori from the understanding alone. (B159–60)

The final subsection of §26 begins by asserting that “[c]ategories are concepts that prescribe laws to nature, as the totality [*Inbegriffe*] of all appearance (*natura materialiter spectata*)” (B163). And the principal argument of this subsection, which sums up the argument of §26 as a whole, then proceeds as follows:

Since now all possible perception depends on the synthesis of apprehension, but the latter, this empirical synthesis, depends on the transcendental [synthesis], and thus on the categories, then all possible perceptions, and thus everything that can ever reach empirical consciousness, i.e., all appearances of nature, in accordance with their combination [*Verbindung*], stand under the categories, on which nature (considered merely as nature in general) depends, as the original ground of its necessary lawfulness (as *natura formaliter spectata*). (B164–5)^[3]

As I have suggested, this summary statement from the final subsection of §26 (B164–5) illuminates the principal argument of the first subsection (B160–1). In particular, the summary statement emphasises that the synthesis of apprehension, as empirical, depends on the transcendental synthesis, and it is for precisely this reason that “all possible perceptions [...] stand under the categories”—which, in turn, constitute the “original ground” of the “necessary lawfulness” of nature. And, in this sense, the argument from perception to experience, for Kant, is indeed quite short. How the argument can be so short, moreover, is illuminated by the transition, in the earlier part of the B-Deduction, from §18 through §19 to §20.

Section 18 explains the distinction between subjective and objective unity of self-consciousness in a way similar to the summary statement from the final subsection of §26, whereby the subjective unity of self-consciousness is empirical and the objective transcendental:

The **transcendental unity** of apperception is that [unity], through which everything in a manifold given in intuition is united in the concept of an object [*Objekt*]. For this reason it is called **objective**, and must be distinguished from the **subjective unity** of consciousness, which is a **determination of inner sense**, through which that manifold of intuition is empirically given for such a combination [*Verbindung*]. Whether I am able to become **empirically** conscious of the manifold as simultaneous, or successive, depends on circumstance, or empirical conditions. Therefore the empirical unity of consciousness, by means of association of representations, itself concerns an appearance, and is entirely contingent. By contrast, the pure form of intuition in time, merely as intuition in general, which contains a given manifold, stands under the original unity of consciousness, solely through the necessary relation of the manifold of intuition to one [*Einen*] **I think**; and therefore through the pure synthesis of the understanding, which lies a priori at the basis of the empirical [synthesis]. (B139)

Now Kant, as we have seen, associates the synthesis of apprehension with merely empirical unity of consciousness in §26:

I first remark that, under the **synthesis of apprehension**, I understand the composition of the manifold in an empirical intuition whereby perception, i.e., empirical consciousness of this [intuition] (as appearance), is possible. (B160)

And the way in which Kant, in §18, contrasts the empirical unity of consciousness with the transcendental unity, in terms of the issue of *objectively* determining succession and simultaneity, suggests that Kant is already here implicitly contrasting the not yet fully objective temporal order of the synthesis of apprehension with the fully objective temporal order of the synthesis of experience (in accordance with the Analogies). The following §19, moreover, confirms this idea.

Section 19, as we have seen, provides a characterisation of the logical form common to all judgements in general in terms of “the objective unity of the apperception of the concepts contained therein” (B140). Kant goes on, accordingly, to explain that the point of this characterisation is to distinguish “the relation of given cognitions in every judgement” from “the relation in accordance with laws of the reproductive imagination (which has only subjective validity)” (B141)—thereby clearly echoing §18. For Kant, in particular, the objectively valid relation of representations in a judgement is grounded in their relation “to the

original apperception and its *necessary unity*, even if the judgement is itself empirical, hence contingent, e.g., “Bodies are heavy” (B142). Kant then distinguishes laws or relations of association from the relation of representations in a judgement:

In accordance with [laws of association] I would only be able to say: If I carry a body, I feel a pressure of weight; but not: It, the body, is heavy, which is as much as saying that these two representations are combined [*verbunden*] in the object [*Objekt*], i.e., regardless of any difference in the condition of the subject, and are not merely [found] together in perception (no matter how often it may be repeated). (B142)

Thus, as I have explained, Kant’s talk of “laws of association” and “perception” of constant conjunctions echoes the anti-Humean argument of the *Prolegomena* and thereby points towards the transition from perception to experience central to the argument of §26.

The final §20 of the earlier part of the B-Deduction is then of particular interest, because it is here that the categories or pure concepts of the understanding make their first substantive appearance in the argument. Indeed, the only place before §20 that the categories are mentioned in this part of the deduction is in the second paragraph of §15. And here they are mentioned only to distinguish the most general “representation of the *synthetic* unity of the manifold [i.e. combination (*Verbindung*)]” (B130–1) from the unity of any particular category:

This unity, which precedes a priori all concepts of combination, is not, say, the former category of unity (§10); for all categories are grounded in the logical functions in judgements, but in these combination, and thus unity of given concepts, is already thought. The categories therefore already presuppose combination. Hence, we must seek this unity (as qualitative §12) still higher, namely in that which itself contains the ground of the unity of different concepts in judgements, and thus [contains] the possibility of the understanding, even in its logical use. (B131)

And this “higher” unity, as we know, is then first introduced in §16 as “the original-synthetic unity of apperception” (B131).

The last sentence of §15, moreover, anticipates the results of §19, according to which “that which itself contains the ground of the unity of different concepts in judgements” is nothing other than “the objective unity of the concepts contained [in the judgement]” (B140), so that “a judgement is nothing other than the way of bringing given cognitions to the *objective* unity of apperception” (B141). The categories are then officially introduced in §20 by beginning, once again, with the

original-synthetic unity of apperception and then explicitly appealing to the results of what Kant, in §26, first terms the *metaphysical deduction* of the categories (B159). Section 20, in its entirety, proceeds as follows:

The manifold in a given sensible intuition necessarily belongs under the original synthetic unity of apperception, because only through this is the **unity** of the intuition possible (§17). But that action of the understanding through which the manifold of representations (whether intuitions or concepts) is brought to an apperception in general is the logical function of judgements (§19). Therefore all the manifold, in so far as it is given in **one** [*Einer*] empirical intuition, is **determined** with respect to one of the logical functions for judging, by means of which, namely, it is brought to a consciousness in general. Now the **categories**, however, are nothing other than precisely these functions for judging, in so far as the manifold of a given intuition is determined with respect to them (§13). Hence the manifold in a given intuition also necessarily stands under categories. (B143) [4]

The argument of §19 therefore relies on the earlier metaphysical deduction of the categories, as the reference to “§13” (which should be “§14” according to note 4 above) in the fourth sentence shows. The preceding sentences all depend on the original synthetic unity of apperception (“an apperception in general”, “a consciousness in general”), although the third sentence tacitly appeals to Kant’s table of the twelve different logical functions for judging (§9) as well. Thus, while the first section (§15) in the earlier part of the B-Deduction, as we have seen, involves an ascent from the pure concepts of the understanding or categories to the “highest principle” of their unity, and the argument remains at this “highest” level through the penultimate §19, the final §20 of this earlier part of the deduction then descends from its “highest principle” to the individual categories themselves. Subsequent to this descent, the later part of the B-Deduction (§§21–7) always adds that the unity of apperception performs its synthesising work “in accordance with” (*nach*) or “by means of” (*durch*) the categories (sometimes just “category” in the singular).

I am now in a position to explain how the transition from perception to experience featured in the principal argument of §26 can be so short. For, once we have shown that the synthesis of apprehension (resulting in perceptions) owes its unity to the original synthetic unity of apperception, it then follows, by the argument of §§19–20, that *all* of the categories must apply, not just the mathematical but also the dynamical categories. The most general logical form or function of all judgements as such is characterised solely by appeal to “the *objective* unity of apperception” (§19). But it has already been shown in the metaphysical deduction (§13; compare note 4 above) that the categories are nothing other

than the twelve logical functions for judging—the twelve logically different ways in which the relation between different cognitions in a judgement *can* be objectively valid—in so far as a given manifold of intuition *is* thereby determined with respect to these functions. Therefore, as the title of §20 explicitly asserts:

All sensible intuitions stand under the categories, as conditions under which alone their manifold can come together [*Zusammenkommen*] in one [*ein*] consciousness. (B143)

There is no room to quibble, on the ground that the third sentence of §20 says that all the manifold of [a single] empirical intuition is determined with respect to *one* of the logical functions for judging but not with respect to *all*, that the mathematical categories might apply but not yet the dynamical categories. For what does all the work here is the characterisation of proper objectively valid judgements in §19, which, as we have seen, is quite clearly intended to make an anti-Humean point concerning the difference between mere perceptions (no matter how often repeated) and proper objectively valid judgements. Such judgements, in the terminology of the *Prolegomena*, are “judgements of experience” (as opposed to “judgements of perception”), and so, in the refined terminology adopted in the second edition of the *Critique*, they concern “experience” rather than mere “perception”: the dynamical categories *must* apply to such a manifold as well.^[5]

The crux of the matter, in my view, is that the original synthetic unity of apperception has a certain kind of priority relative to the categories. It is not that the unity of apperception could be applied independently of the categories; for, if this were the case, Kant’s argument could not result in the conclusion that the categories have necessary objective validity. It is rather that the unity of apperception is prior to the categories as their highest ground or principle. The categories presuppose the unity of apperception as their ground but not, of course, *vice versa*. And, correspondingly, the unity of apperception is more general than the categories, in so far as it is equally manifested (as ground) in all of them. The sense in which the unity of apperception must always necessarily manifest itself in accordance with the categories, and by means of them, is that all empirical cognitions—all objectively valid empirical judgements—must involve the pure concepts of the understanding, and, indeed, empirical concepts as well. That of which the highest principle of the understanding is the highest principle is precisely the possibility of empirical cognition or experience, and the categories, as we have seen, are valid precisely as a priori necessary conditions of this possibility.

Consider, once again, the paradigmatic objectively valid judgement of §19: “Bodies are heavy.” The concept of ‘body’ and the concept of ‘weight’ are both empirical concepts, for Kant, and they instantiate, in the judgement, the pure concepts (or concept) of the understanding, *substance and accident*. Their relation to one another in the judgement is thus an instance of dynamical necessary connection (*notwendige Verknüpfung*). Although the two empirical concepts, as empirical, do not belong necessarily together in empirical intuition or perception, they do belong necessarily together (dynamically) in empirical cognition, that is, experience:

By this [i.e. Kant’s conception of the relevant relation between the two concepts in the judgement], however, I do not intend to say that these representations belong **necessarily to one another** in the empirical intuition; rather, they belong to one another **in virtue of the necessary unity** of apperception in the synthesis of intuitions, i.e., in accordance with principles [*Prinzipien*] of the objective determination of all representations in so far as cognition can arise from them, which principles are all derived from the principle [*Grundsatz*] of the transcendental unity of apperception. (B142)

And since, as we have seen, the goal of this derivation of principles is the Analogies of Experience, as summarised in the general principle of all three Analogies in the second edition, it follows that a transition from perception to experience is already built in to the characterisation of objectively valid judgements as such.

Yet the argument of the B-Deduction, of course, does not end with §§ 19 and 20. It proceeds by restricting the manifold of intuition in general to specifically spatio-temporal intuition (§21), considering the relevance of this restriction to mathematical cognition (§22), asserting (§23) that the categories—in the absence of spatio-temporal intuition—are “mere forms of thought without objective reality” (B148), explaining (§24) the figurative synthesis or transcendental synthesis of the imagination as “an action of the understanding on sensibility and its first application (and simultaneously the ground of all the rest) to objects [*Gegenstände*] of an intuition possible for us” (B152), and finally drawing the conclusion (§26) that “the categories are conditions of the possibility of experience, and are thus also valid a priori for all objects [*Gegenständen*] of experience” (B161). Moreover, the argument for this conclusion in §26 crucially depends on the distinction, in the main text, between space and time as “forms of intuition” and as “intuitions themselves” (B160)—the distinction (applying to both space and time), in the footnote, between “form of intuition” and “formal intuition” (B160n.). So here is the place to examine this distinction together with its decisive role in Kant’s argument.

Kant explains in the footnote that “the *form of intuition* gives merely a manifold, but the *formal intuition* gives unity of representation” (B160n.), so that the crucial distinction appears to be that between a mere, not yet unified manifold of intuition and one that has been unified by the understanding. Kant then addresses the apparent disconnect between this idea and what has already been said in the Transcendental Aesthetic:

In the Aesthetic I ascribed this unity to sensibility, only in order to remark that it precedes all concepts, although it in fact presupposes a synthesis that does not belong to the senses but through which all concepts of space and time first become possible. (B160–1n.)

Here Kant appears to explain what was said in the Aesthetic in terms of the priority of the relevant synthesis of the understanding to all concepts, in particular, all concepts of space and time. This reminds us of the priority of the original-synthetic unity of apperception to all concepts, in particular, all pure concepts of the understanding. At this point in the argument, however, in view of the restriction of the manifold of intuition to spatio-temporal intuition, the relevant synthesis of the understanding must now be the figurative synthesis or transcendental synthesis of the imagination, which represents the “first application” of the understanding to sensibility—“to objects of an intuition possible for us [i.e. a spatio-temporal intuition]” (B152).^[6]

According to my earlier discussion of §24 (which section, of course, is prominently cited at the end of the footnote at B160–1n.), the first paragraph of that section suggests that a priori intuitions of our sensibility (as paradigmatically generated in mathematics) are needed to mediate the necessary relationship between our understanding and the objects of our (spatio-temporal) sensibility. It thereby appears to confirm what is explicitly asserted in §22—namely, that the categories can be applied to (spatio-temporal) empirical intuitions only “by means of” the pure intuitions generated in mathematical (primarily geometrical) construction (B147). In the final paragraph of §24, moreover, Kant illustrates the transcendental synthesis of imagination in terms of precisely such mathematical constructions: drawing a straight line, describing a circle, and “*setting [setzen]* three lines perpendicular to one another from the same point” (B154). And, although the first two examples straightforwardly concern the construction of particular (Euclidean) geometrical concepts (line segments, circles), the third appears to be the construction of a property of space as a whole, namely, its three-dimensionality. For Kant’s description of this example, in full, states that “we can in no way represent the three dimensions of space [*die drei Abmessungen des Raums*] without *setting* three lines perpendicular to one another from the same point” (ibid.). Further, as we have also seen above, Kant

states in the Transcendental Exposition of space (§3) that “[g]eometry is a science that determines the properties of space synthetically but still a priori” (B40), and gives as an example of such determination the “proposition” that “space has only three dimensions [*der Raum hat nur drei Abmessungen*]” (B41).

Even more striking, however, is Kant’s next (and final) example, according to which

we cannot even represent time without, in the **drawing** of a straight line (which is to be the outer figurative representation of time), attending merely to the action of the synthesis of the manifold through which we successively determine inner sense, and thereby attend to the succession of this determination in it. (B154)

Kant is here using a particular act of Euclidean construction (drawing a straight line), not to represent the relevant geometrical concept (a line segment), but rather to represent something in itself entirely non-spatial: the pure intuition of time. Accordingly, Kant further explains in the next sentence that we must entirely abstract from the spatial aspect of the temporally extended constructive act in this representation:

Motion, as action of the subject (not as determination of an object), and thus the synthesis of the manifold in space—if we abstract from the latter and attend merely to the action by which we determine **inner** sense in accordance with its form—[such motion] even first produces [*bringt . . . hervor*] the concept of succession [*Sukzession*]. (B154–5, my underlining)

Kant concludes:

Thus the understanding does not **find** some such combination of the manifold in [inner sense], but **produces it** [*bringt sie hervor*], by **affecting** [this sense]. (B155)

I shall return to the concept of motion below, but I first want to emphasise that the resulting representation of time as a whole is that of a one-dimensional order of succession. In the constructive act of setting three lines perpendicular to one another at a point we represent space as a whole as an infinite three-dimensional order of simultaneity: compare the relevant discussions from the Aesthetic already considered above (B39–40, B40–1). Similarly, in the figurative representation of time we represent time as a whole as an infinite one-dimensional order of succession. Here we should compare the discussion in §24 just considered (B154–5) with a later relevant discussion from the Aesthetic:

And, precisely because this inner intuition [i.e., time] yields no figure [*Gestalt*], we also seek to remedy this lack through analogies, and we represent the temporal sequence [*Zeitfolge*] by a line progressing to infinity, in which the manifold constitutes a series of only one dimension [*Dimension*], and we infer from the properties of this line to all of the properties of time, with the exception of a single one—that the parts of the line are simultaneous, but the parts of time are always successive [*nach einander*]. (A36/B50)

Moreover, there is a similar passage in a later part of the final paragraph of §24:

We are able to make time, which is not an object [*Gegenstand*] of outer intuition at all, representable to us in no other way than under the image [*Bild*] of a line, in so far as we draw it, without which mode of presentation we could by no means cognize the unity/singleness [*Einheit*] of its dimension [*Abmessung*] [...]. (B156)

It has been suggested, however, that the last phrase should be translated as “the unity of its measure”, and Guyer and Wood follow this suggestion. In view of the fact that Kant, at the beginning of this final paragraph, uses *Abmessungen* for the three dimensions of space (B154)—and, as we have seen, also uses *Abmessungen* for these same three dimensions in the Aesthetic (B41)—it seems to me overwhelmingly likely that Kant intends “dimension” rather than “measure” here. Kant means to emphasise either the one-dimensionality of this order of succession (as in the Aesthetic), its unity as a whole synthesised by the understanding, or both. And, in any case, Kant considers the *measurement* of time only in the next point he makes, which, as we shall see, explicitly involves a transition from pure to empirical intuition.

In particular, the first part of the sentence quoted immediately above (B156) continues as follows:

[W]e must always derive the determination of the lengths of time [*Zeitlänge*], or also that of the positions in time [*Zeitstellen*] for all inner perceptions, from that which is presented to us by outer alterable things; hence we must order the determinations of inner sense, as appearances in time, in precisely the same way as [the appearances] of outer sense in space [...]. (B156)

Here Kant signals the transition from pure to empirical intuition by focusing, for the first time in §24, on “perceptions” (*Wahrnehmungen*) and “appearances” (*Erscheinungen*), not simply on the constructive operations (of the pure productive imagination) in the transcendental figurative synthesis. In addition, Kant’s talk of the *determination* of such things as lengths of time (measurement of temporal intervals) and a comprehensive ordering of all perceptions suggests

an *objective* determination of such temporal appearances by means of the Analogies of Experience. Indeed, Kant explicitly characterises these three Analogies as

nothing other than the principles for the determination of the existence of appearances in time with respect to all of its three modes, the relation to time itself as a magnitude (the magnitude of existence, i.e., duration), the relation in time as a series (successively), and finally [the relation] in time as a totality of all existence (simultaneously). (A215/B262)

And, as we have already seen, precisely because “absolute time is no object [*Gegenstand*] of perception” itself, the determination in question is “thoroughly dynamical” — “the rule of the understanding [...] determines for each appearance its position [*Stelle*] in time” (A215/B262).

It is clear, therefore, that Kant not only focuses on empirical rather than pure intuition in the final paragraph of §24 (B156), but he is also anticipating the transition from perception, in accordance with the mathematical categories, to experience, in accordance with the dynamical categories. He is thereby preparing the ground for the explicit consideration of this transition in the following §26. Moreover, Kant’s emphasis on the priority of outer over inner sense in the same discussion from §24 anticipates his later Refutation of Idealism added to the second edition in the Postulates of Empirical Thinking in General (B274–9). Kant introduces the Refutation as a comment on his claim that “[t]he Postulate for cognizing the *actuality* [*Wirklichkeit*] of things, requires *perception* [*Wahrnehmung*]” (A225/B272)—not necessarily immediate perception of the object whose existence is in question, “but still interconnection [*Zusammenhang*] of this existence [*Dasein*] with some or another actual perception in accordance with the Analogies of Experience, which exhibit all real connection [*Verknüpfung*] in an experience in general” (ibid.). The Refutation itself aims decisively to undercut the “*problematic* idealism of Descartes” (B274), according to which I have immediate consciousness only of my own mental states (i.e. only objects of inner sense).

The proposition to be demonstrated is:

The mere, but empirically determined, consciousness of my own existence proves the existence of objects in space outside me. (B275)

The proof, as is well-known, turns on the fact, according to Kant, that all determination of time presupposes something *permanent* in perception (in accordance with the argument of the First Analogy), and, moreover, that a properly permanent object of experience (a substance) can only be found in

space. More precisely, therefore, it is inner *experience* of my own existence—that is, the determination of this existence in time in accordance with the Analogies—that ultimately requires the priority of outer sense:

Certainly the representation **I am**, which expresses the consciousness that can accompany all thinking, is something that immediately includes the existence [*Existenz*] of a subject in itself, but not yet a **cognition** of this subject, and thus also not empirical [cognition], i.e., experience; for there still belongs to this, aside from the thought of something existing [*Existierendem*], also intuition and in this case inner intuition, in relation to which, i.e., to time, the subject must be determined, for the sake of which outer objects [*Gegenstände*] are absolutely required—so that, consequently, inner experience itself is only mediate and only possible by means of outer [experience]. (B277)

Kant then proceeds to illustrate this result:

It is not only [the case] that we must undertake [*vornehmen*] all determination of time only by means of change of outer relations (motion) with respect to the permanent in space (e.g., motion of the sun with respect to objects [*Gegenstände*] on the earth); we do not even have anything permanent, as intuition, which could underlie the concept of a substance, except merely **matter**, and even this permanence is not extracted from outer experience, but is rather presupposed a priori as necessary condition of all determination of time, and thus also [for] the determination of inner sense in relation to our own existence [*Dasein*] through the existence [*Existenz*] of outer things. (B277–8)

Kant makes it clear in the remainder of the paragraph that the concept of matter in question depends on *empirical* intuition, and it is therefore the *empirical* concept of matter that he has developed in the *Metaphysical Foundations of Natural Science* of 1786:

The consciousness of my self in the representation ‘I’ is no intuition at all, but rather a mere **intellectual** representation of the self-activity of a thinking subject. This ‘I’, therefore, does not have the least predicate of intuition, which, as **permanent**, could serve as correlate of the determination of time in inner sense—as, say, **impenetrability** does in matter, as **empirical** intuition. (B278)

I have elsewhere discussed the relationship between the *Metaphysical Foundations* and the second edition of the *Critique* in considerable detail, and I shall not go into these details here. Suffice it to say, for present purposes, that this part of the Refutation of Idealism is also connected to the reformulation of the First Analogy in the second edition as a *quantitative* law of the conservation of (the quantity of) substance (B224)—which law, in the *Metaphysical*

Foundations, is realised or instantiated as a parallel (quantitative) conservation law for the total quantity of matter (MAN, AA 4:541). The latter conservation law appears as the First of Kant's three Laws of Mechanics, which, I have argued, have essentially the same function in Kant's argument as Newton's Axioms or Laws of Motion in the *Principia*. I have also argued, accordingly, that the example of the determination of time in the Refutation (in terms of motion of the sun relative to the earth) is invoking Newton's discussion of the distinction between "true" or "absolute" and merely "relative" or "apparent" time in the famous Scholium to the Definitions in the *Principia*. In particular, although we *begin* this determination with the apparent motions of the heavenly bodies relative to our own position here on earth, the progress of astronomy successively corrects and improves such an initial determination of time. We thereby progress from the sophisticated geometrical models of ancient (geocentric) astronomy, continue through the Copernican revolution, and finally reach a culmination, of sorts, in Newton's demonstration of the (approximate) truth of the Copernican system by means of his Laws of Motion and theory of universal gravitation. Thus, since Kant's three Laws of Mechanics, taken together, instantiate all three relational categories, it is only at this point, for Kant, that we have achieved a truly *dynamical* determination of time grounded a priori on the Analogies of Experience (A215/B262).

I take Kant's discussion of the astronomical example in the Refutation of Idealism to be the counterpart for the determination of time in empirical intuition of his earlier discussion of the determination of time (as the form of inner sense) in pure intuition in the final paragraph of §24 (B154–5). And the crucial question, in my view, is then how exactly the astronomical example is supposed to illustrate and support Kant's claim that, contrary to Descartes, we do (and indeed must) have immediate perceptions of outer objects in space. Consider the evidential procedure in the example, which begins from our (naked-eye) perceptions of the motions of the heavenly bodies relative to our position on the surface of the earth. Systematic quantitative observations in this context fit naturally into a large sphere centred on the earth, wherein lines of sight from the observer to the bodies in question describe changing angles (of longitude and latitude) over time. These are the relative or apparent motions from which we begin; they represent a two-dimensional spherical projection of whatever the true three-dimensional motions in space happen to be. The Copernican system then enables a geometrically determinate solution to this latter problem by embedding the two-dimensional motions on the surface of an appropriately sized sphere centred on the observer into a heliocentric representation of what we now take to be the true motions in three-dimensional geometrical space.

So far, however, we have only a geometrical-kinematical representation, which, by Kant's lights, does not yet amount to fully objective experience. The latter, for Kant, also requires an a priori determination by the categories and principles of the pure understanding, especially the Analogies of Experience. And it is this, by Kant's lights, that only Newton has achieved. In particular, by introducing his characteristic concepts of mass, force, and interaction, governed by the three Laws of Motion, Newton is then in a position (mathematically) to demonstrate that only a point very close to the centre of the sun can represent the centre of gravity (and thus the true centre of motion) of the entire solar system. Kant's refutation of Cartesian 'problematic' idealism rests on the fact that the evidential procedure just sketched presupposes throughout perception of bodies somehow moving in three-dimensional (Euclidean) geometrical space: the merely apparent motions are corrected and improved by first embedding them into a more determinate geometrical-kinematical representation (the Copernican system), and then, at the hands of Newton, into an even more determinate (and in some sense unique) geometrical-dynamical representation. The point, for Kant, is that arbitrarily limiting ourselves to the entirely non-spatial data of inner sense drastically reduces the a priori inferential resources at our disposal, so that objective experience, in Kant's technical sense, would then be simply impossible—even of the putative 'objects' of inner sense.

Recall that §22 (B147) and the first paragraph of §24 (B150–1) together strongly suggest that the categories, as conditions of the possibility of objective experience, apply to the (empirical) objects of our senses (in space and time) *by means of* mathematical constructions in pure intuition—which, by themselves, do not amount to what Kant calls cognition or objective experience. Moreover, according to Kant's further discussion in §24 of the figurative synthesis or transcendental synthesis of the imagination, the synthesis in question is exerted by the understanding on *pure* sensibility in first intellectually determining space and time as all-encompassing wholes. We have now seen what this means more concretely. In particular, the geometrical constructions enumerated in the first part of the final paragraph of §24 not only generate representations of particular geometrical figures (line segments, circles), they also generate a representation of space as a whole (a three-dimensional order of simultaneity), and, even more interestingly, a representation of time as a whole (a one-dimensional order of succession). It then emerges from the Refutation of Idealism, which is itself anticipated at the end of this final paragraph, that the Newtonian determination of true or absolute motion, and thus true or absolute time, instantiates the Analogies of Experience in *empirical* intuition. At this point, and only at this point, we now have a concrete example (or instance) of fully objective experience as Kant understands it.

The transition from perception to experience, as we have seen, is only discussed explicitly in §26. This is why only §26, and not §24, can serve as the culmination of the B-Deduction. But the relation between the two, in any case, can now be understood as follows. The figurative representation of time in §24 abstracts from the manifold in space and thereby produces only the concept of (one-dimensional) succession in time. So we do not yet have the resources to determine *objective* succession (as opposed to objective simultaneity), which is the task, of course, of the Analogies of Experience. The argument of §26 then begins with the synthesis of apprehension, namely, “the composition [*Zusammensetzung*] of the manifold in an empirical intuition whereby perception, i.e., empirical consciousness of this [intuition] (as appearance), is possible” (B160). We know, therefore, that this is not yet experience, which requires the additional synthesis of connection [*Verknüpfung*] in accordance with the Analogies. But we also know, from the Refutation of Idealism, that perception in general—as the prelude to experience—must include the immediate perception of objects in space. So both (one-dimensional) time and (three-dimensional) space are required in perception, and we must begin with an intuitive framework comprising both forms of pure intuition—that is, a three-plus-one dimensional order of simultaneity *and* succession. It is no wonder, therefore, that Kant’s final characterisation of the Analogies of Experience takes the *three* modes of time to include duration, succession, and simultaneity (A215/B262). (As I have explained, the objective determination of duration—temporal measurement—belongs specifically to experience just as much as the distinction between objective simultaneity and succession. I shall return to this important point at the end.)

It is also no wonder, accordingly, that the following argument (B160–1) goes on to consider the unity of both space and time—so that

unity of the synthesis of the manifold, outside us or in us, and thus a **combination** [*Verbindung*] with which everything that is to be represented in space or time as determined must accord, is itself already a priori given simultaneously, with (not within) these intuitions [i.e. space and time as ‘intuitions themselves’], as condition of the synthesis of all **apprehension**. (B161, my underlining)

This synthetic unity of space and time, like all synthetic unity, must be due to the understanding, and, in particular, to the original-synthetic unity of the understanding. The crux of the argument is how we then move, more specifically, to the synthesis of experience, that is, from *composition* (*Zusammensetzung*) to *connection* (*Verknüpfung*). The transition is quite straightforward, as we have seen, from the side of the understanding. The logical form of all judgements in

general “consists in the objective unity of the apperception of the concepts contained therein” (§19, B140). But there are exactly twelve logically different “functions for judging” by means of which alone such objective unity of apperception can arise (§20, B143). And the *categories*, by the Metaphysical Deduction, are just these twelve different “functions for judging, in so far as the manifold of a given intuition is determined with respect to them” (ibid.). Hence, all sensible intuitions stand under the categories—*all* of the categories—“as conditions under which alone their manifold can come together in one [*ein*] consciousness” (ibid.).

The burden of §26, however, is to establish an analogous result, but now from the side of sensibility (space and time) rather than the understanding (the categories). The operative idea here, I have argued, is that the possibility of experience requires that pure mathematical constructions *mediate* the application of the categories to the objects of our (spatio-temporal) empirical intuition. Effecting such mediation is the role of the figurative synthesis or transcendental synthesis of the imagination, which, once again, is “an action of the understanding on sensibility and its first application (and simultaneously the ground of all the rest) to objects [*Gegenstände*] of an intuition possible for us” (§24, B152). So once we acquire a better appreciation of the mediating role of such mathematical constructions, I believe, we shall thereby achieve a better appreciation of the characteristic action exerted by the understanding on our forms of sensibility as well as the independent contribution that these same forms of sensibility make to the possibility of genuinely objective human experience (empirical cognition).

The key to such appreciation, in my view, is two-fold. On the one hand, the pure mathematical constructions in question are all species of the transcendental synthesis of the imagination, which, in turn, is the more general ground underlying all of them. Mathematical constructions therefore stand to the transcendental synthesis of the imagination as the categories do to the original-synthetic unity of apperception. On the other hand, however, although mathematical constructions in general always proceed in accordance with concepts, the relevant concepts are what Kant calls “pure sensible concepts” (A140/B180), not pure intellectual concepts like the categories. And Kant is clear that *all* pure concepts, not just the pure concepts of the understanding, must derive their objective reality or real possibility by being a priori conditions of the possibility of experience:

A concept that contains a synthesis within it is to be taken as empty, and does not relate to any object [*Gegenstand*], if this synthesis does not relate to experience, either as borrowed from it, and then it is an **empirical concept**, or

as one on which, as a priori condition, experience in general (the form of such) rests—and then it is a **pure concept**, which nevertheless belongs to experience, because its object [*Objekt*] can only be met with in the latter. (A220/B267)

Kant proceeds to illustrate the point by examples of geometrical concepts (a putative two-sided plane figure and a triangle) as well as examples of pure concepts of the understanding (substance, causality, community, the concept of magnitudes [*Größen*]). This confirms, from a different angle, that pure mathematical constructions are indeed necessary conditions of the possibility of experience in addition to the categories.

We can now finally return to the problematic footnote attached to the primary argument of §26. Kant begins with the idea of “space represented as *object* [*Gegenstand*] (as is actually required in geometry)” (B160n.), which, of course, fits well with his emphasis on mathematical (here geometrical) constructions. If we take seriously Kant’s reference back to §24 at the end of the footnote (B161n.), however, we see that pure geometrical constructions can play rather different roles. They can generate representations of particular geometrical figures (line segments, circles), of the properties of space as a whole (three-dimensionality), or even of time as a whole (as a one-dimensional order of succession). However, since here, in the footnote, Kant appears to identify “space represented as *object*” with space as a “*formal intuition*” explicitly contrasted with the mere “*form of intuition*” (ibid.), what is at issue appears to be an intuitive representation of space as a single whole—as in the example of “*setting* [*setzen*] three lines perpendicular to one another from the same point” in §24 (B154), considered in conjunction with the example of three-dimensionality as a property of space (as a whole) back in the Aesthetic (§3; B40–1).^[7]

Kant has already indicated in the first sentence of the footnote that the desired intuitive representation of space as a single whole (as “*formal intuition*”) results from an intellectual act of “*grasping together* [*Zusammenfassung*]” the manifold (B160n.). And this, moreover, echoes Kant’s usage of being “grasped together [*zusammengefaßt*] in a self-consciousness” to explain the sense in which all the manifold of intuition stands under the unity of apperception in §17 (B136–7). The second sentence of the footnote, as we have seen, then addresses the apparent tension between what Kant is saying here and what he concludes concerning the “single, all-encompassing space” in the Metaphysical Exposition (A25/B39)—that the “the original representation of space is an a priori *intuition*, not a *concept*” (A25/40). Kant now maintains, in particular, that the apparent tension in question rests simply on a misunderstanding:

In the Aesthetic I ascribed this unity to sensibility, only in order to remark that it precedes all concepts, although it in fact presupposes a synthesis that does not belong to the senses but through which all concepts of space and time first become possible. (B160–1n.)

The unity Kant is considering is the “unity of representation” given by the “*formal intuition*”, and this unity, he is now saying, is actually due to an intellectual act of synthesis (of the understanding on sensibility). The synthesis in question is therefore the transcendental synthesis of the imagination (§24), with one foot in the understanding and the other in sensibility, and so there is no contradiction at all, Kant thinks, with the doctrine of the Aesthetic.

Yet one may still have qualms concerning the precise sense in which the intuitive unity of the formal intuition “precedes all concepts”, since, on my reading, this unity, in the case of space, may depend on the construction of three lines perpendicular to one another, for example, and this construction presupposes the concept (and construction) of *straight* lines together with the concept (and construction) of *perpendicular* lines. The most important obstacle to understanding Kant’s point, however, arises in the third and final sentence:

For, since through it (in that the understanding determines sensibility) space or time are first **given** as intuitions, the unity of this a priori intuition belongs to space and time, and not to the concept of the understanding. (B161n.)

The reference to “it” in the first clause appears to be to the *synthesis* mentioned in the preceding sentence, and Kant therefore appears to be saying that the synthesis in question is an act of determination (of sensibility) by the understanding but, at the same time, that the resulting *unity* belongs to space and time rather than (the concept of) the understanding. It is very hard to see how Kant is not contradicting himself here by both asserting and denying the primacy of the understanding over sensibility.

This, of course, is the crux of the issue between ‘conceptualist’ and ‘non-conceptualist’ interpreters of §26. The former maintain the absolute primacy of the understanding over sensibility, the latter emphasise the radically independent contribution of sensibility, and ‘moderate conceptualists’, like myself and Longuenesse, attempt to steer a middle ground between them. Allison’s position is closely allied to that of Onof and Schulting (2015), and he maintains, accordingly, that there are two different conceptions of unity in the footnote we are now considering:

Rather than a single conception of unity about which incompatible claims are made, the note is concerned with two distinct conceptions: one that pertains to space and time themselves as ‘given’, i.e., as forms of sensibility, and one that pertains to the **representation** of their unity by the cognizing subject. The former is the unicity of space and time as described above [by Onof & Schulting]; the latter, as a product of a transcendental synthesis, is a synthetic unity and, as such, grounded in the unity of apperception. Whereas the former pertains to space and time as forms of intuition; the latter pertains to them as formal intuitions. (pp. 412–3)^[8]

It is already clear, however, that I cannot follow Allison (and others) in this restrictive reading of “*formal intuition*” (B160n.). And, accordingly, I take space and time “as *intuitions* themselves” (B160)—i.e., as formal intuitions—to be the two all-encompassing intuitive wholes of the Aesthetic. This, in fact, is precisely why Kant needs to say something more about what was said in the Aesthetic in the second sentence of the footnote under consideration (B160–1n.). (Compare also, once again, the parallel footnote to §17 [B137].) I therefore prefer an alternative explanation of the apparent contradiction in the third and final sentence (B161n.): one that does not invoke a distinction between “unicity” and “unity” that Kant himself does not explicitly make, and, more importantly, helps us further to appreciate the transition from perception to experience that is the crux of the argument of §26.

My preferred explanation focuses on the distinction Kant does explicitly make between two essentially different types of (synthetic) a priori concepts: pure concepts of the *understanding*, on the one side, and pure *sensible* concepts, on the other. Consider, once again, what Kant says about such pure sensible (i.e. spatio-temporal) concepts in §24:

We can think no line without **drawing** it in thought, no circle without **describing** it; we can in no way represent the three dimensions of space without **setting** three lines perpendicular to one another from the same point; and we cannot even represent time without, in the **drawing** of a straight line (which is to be the outer figurative representation of time), attending merely to the action of the synthesis of the manifold through which we successively determine inner sense, and thereby attend to the succession of this determination in it. (B154)

All of these acts of synthesis, it is clear, are instances of the transcendental synthesis of the imagination. And what is most striking, from my point of view, is that without these synthetic acts (of the understanding on our spatio-temporal sensibility) it would not be possible even to *think* or *represent* the concepts in question. By contrast, the pure concepts of the understanding can be

meaningfully thought or represented independently of their (spatio-temporal) schemata: substance as that which must always be considered as subject and never as mere predicate, cause as that which if it is posited something else must also be posited, and so on. But a pure sensible concept, independently of its schema, conveys no determinate thought at all.

Consider, for example, what Kant says about the concept of a circle in the Postulates of Empirical Thinking in General:

A postulate in mathematics is the practical proposition that contains nothing except the synthesis whereby we first give ourselves an object [*Gegenstand*] and generate [*erzeugen*] its concept, e.g., to describe a circle with a given line from a given point in a plane; and such a proposition cannot be proved, because the procedure it requires is precisely that through which we first generate the concept of such a figure. (A234/B287)

What holds for the concept of a circle also holds of the concept of a (straight) line: without the capacity to *draw* such a line from a given point, we simply do not have the relevant concept in the first place. Moreover, it is of the utmost importance, on my reading, that Kant explicitly moves in §24 from concepts of particular figures to representations of space and time themselves as given intuitive wholes. The most dramatic example is the figurative representation of time by the *drawing* of a straight line, in which we attend “merely to the action of the synthesis of the manifold through which we successively determine inner sense, and thereby attend to the succession of this determination in it” (B154). This action of the understanding, Kant says, “even first produces the concept of succession [*bringt so gar den Begriff der Sukzession zuerst hervor*]” (B155), and, more emphatically, “the understanding does not *find* some such combination of the manifold in [inner sense], but *produces it* [*bringt sie hervor*], by *affecting* [this sense]” (ibid.). Without this figurative determination of inner sense, therefore, there is simply no concept of a one-dimensional order of succession to be thought—no concept, that is, of infinite one-dimensional time as an intuitive whole.

The interpretation of the second sentence of the footnote to §26 that we are considering (B160–1n.) is now straightforward. The “synthesis” in question (B161n.) is the transcendental synthesis of the imagination, as explained and illustrated in §24, and the resulting “unity” (B160n.) is that of the “single, all-encompassing space” in the Aesthetic (A25/B39). The transcendental synthesis of the imagination, although an act of the understanding, involves the construction of pure sensible concepts in space and time, and, in this sense, “all concepts of space and time” (B161n.)—both of particular constructions and of

space and time themselves—presuppose a synthesis exerted by the understanding. Moreover, the unity in question “precedes *all* concepts” (ibid., emphasis added), insofar as the mathematical constructions at issue mediate the application of the categories (now schematised) to the objects of a possible experience. The interpretation of the third sentence is then almost as straightforward as the second. The transcendental synthesis of the imagination determines sensibility through the understanding, and it is through this synthesis, in fact, that “space or time are first *given* as intuitions” (ibid.), that is, as “*intuitions* themselves” (B160). But the resulting “unity of this a priori intuition belongs to space and time, and not to the concept of the understanding” (B161n.), insofar as the synthesis in question generates only pure *sensible* concepts. The resulting unity, depends on neither the logical forms of judgement nor the hierarchical ordering of concepts in terms of intension and extension. It rather depends on the *spatio-temporal* forms of sensibility, whether of particular spatio-temporal objects (geometrical figures, temporal intervals) or space and time themselves as all-encompassing orders of simultaneity and succession.

These two structural features of space and time themselves, as intuitive wholes, are independent contributions of our faculty of sensibility. That space is a three-dimensional order of simultaneity and time a one-dimensional order of succession are distinctive of *our* (human) forms of sensibility and by no means hold of *any* form of intuition in general (whether spatio-temporal or no). I have explained above how the formal structures in question facilitate the transition from perception to experience by considering the second part of the final paragraph of §24 (B155–6) in connection with the Refutation of Idealism and, accordingly, the Analogies of Experience. I have also explained how, and in what sense, the Analogies of Experience thereby serve objectively to determine the three “modes of time”: “the relation to time itself as a magnitude (the magnitude of existence, i.e., duration), the relation in time as a series (successively), and finally [the relation] in time as a totality of all existence (simultaneously)” (A215/B262).

Focusing on the first and most fundamental mode of time, in particular, we find an especially perspicuous structural difference between time and space that is crucial for appreciating the transition from perception to experience. Space, for Kant, has an intrinsic metric (measure of distance) in pure intuition. This is because Euclid’s geometry, by exploiting the concept of a circle (equality of radii), allows one to construct equal (congruent) line segments at any two points (and directions) in any two-dimensional plane (*Elements*, Proposition 2 of Book I). But there is no such concept in the temporal order of succession, which has only one dimension. For Kant, therefore, there is no intrinsic metric (measure of duration) given in the pure intuition of time all by itself. Such a metric only arises through a

unification of time and space in the concept of *motion*, and this, as I have said, gives rise to a *dynamical* determination of duration requiring the Newtonian concepts of mass, force, and interaction governed by the three Laws of Motion. Such a determination first arises, for Newton (and therefore Kant), in Proposition 1 of Book 1 of the *Principia*, according to which bodies orbiting a stationary centre of (centripetal) force describe areas in stationary planes that are directly proportional to the time. This, of course, is Kepler's area law, and what it thereby enables is the projection of a geometrical measure (of areas) in three-dimensional space onto the one-dimensional order of temporal succession. But such measures of temporal duration, as dynamical, can only be found in empirical rather than pure intuition, and this is the precise sense, for Kant, in which the different but interrelated structures of spatial and temporal pure intuition facilitate the application of the categories—all of the categories—in the transition from perception to experience.



Notes:

[1] In the Spring of 2016 I taught a seminar at Stanford on the Transcendental Deduction using Allison's book as the main piece of secondary literature. Allison visited this seminar and contributed insightful comments on my approach to the B-Deduction as well as a session of his own on the A-Deduction. I learned a tremendous amount from this experience, and this essay is an attempt to rethink my approach in the light, especially, of Allison's contributions to the seminar and a consequent rereading of his book. I am indebted, as well, to the other participants in the seminar: Andrew Chignell, Graciela De Pierris, Jonathan Ettl, Tal Glezer, Kip Husty, Hyoung Sung Kim, Dustin King, Huaping Lu-Adler, Adwait Parker, Paul Tulipana, Andrew Werner, and Steven Woodworth. Finally, I am also indebted to an illuminating exchange with Riccardo Pinasio after serving as an external member of his dissertation committee at the University of Amsterdam. ↩

[2] Another source of possible confusion arises from the circumstance that we are here considering a special kind of 'perception'—namely that of a happening (*Geschehen*) or event (*Begebenheit*). Such an event always involves a transition from one state of a substance (e.g. fluidity) to another (e.g. solidity), and, if the temporal order of transition is reversed, we simply have a different event with a correspondingly different cause (e.g. heating rather than cooling). So this kind of 'perception' already involves objective time determination in its very concept. Nevertheless, Kant is always clear, including in the text of the Second Analogy itself (both editions), that this kind of 'perception' is necessarily determined in time in accordance with the Second Analogy: "That something happens [*geschieht*] is a perception, which belongs to a possible experience, [and] which thereby becomes actual if I regard the appearance as determined according to its place in time, and thus as an object [*Objekt*], which can always be found in the context [*Zusammenhange*] of perceptions in accordance with a rule. This rule, however, for determining something according to the time series, is that in

what precedes the condition is to be met with under which the event [*Begebenheit*] always (i.e., necessarily) follows. Therefore, the principle of sufficient reason is the ground of possible experience, namely, the objective cognition of appearances with respect to their relation in the time series" (A200–1/B245–6).↵

[3] This subsection concludes by distinguishing a priori laws of "a *nature in general*, as lawfulness of appearances in space and time" from "particular laws", which concern "empirically determined appearances" (B165). The latter, Kant says, "*cannot be completely derived* from the categories, although they one and all stand under them" (ibid.). I have discussed the relationship between the a priori laws of a nature in general in space and time (i.e., the Principles of Pure Understanding) and particular empirical laws in some detail in a number of places, and I leave this issue aside here.↵

[4] I note, parenthetically, that the reference to '§13' in the penultimate sentence appears to be best construed as a reference to the three final paragraphs, added in B, of what should be '§14'. For it is in the last of these paragraphs that Kant characterises the categories as "concepts of an object [*Gegenstände*] in general, through which its intuition is viewed as *determined* with respect to one of the *logical functions* for judging" (B128).↵

[5] The same point is repeatedly emphasised throughout §26 in its substantial discussion of objectively valid laws of nature, which include, just as in the *Prolegomena*, particular empirical laws of nature in addition to the a priori laws of a nature in general prescribed by the pure understanding: compare note 3 above.↵

[6] Although I am not yet in a position to explicate the third and final sentence of the footnote (which, as a whole, appears extraordinarily paradoxical), it is worth noting here that its first clause states (as the antecedent of a conditional) that "through it [i.e., the synthesis mentioned in the previous sentence] (in that *the understanding determines sensibility*) space or time are first *given* as intuitions" (B161n., emphasis added), thereby confirming that the relevant synthesis is indeed a synthesis of the *understanding*. Moreover, since this synthesis pertains to space and time as given *intuitions*, it can only be the transcendental synthesis of the imagination. The consequent to the conditional in question then introduces the final, and most extraordinary, appearance of paradox, and I shall return to it below.↵

[7] It is also possible to address the question of space represented as a single whole through the distinction between *geometrical* and *metaphysical* space that Kant draws in his comments on Kästner's treatises in 1790. There the geometrical constructions considered are just those of line segments and circles, and the idea is that these constructions presuppose the all-encompassing whole of metaphysical space (closely related to our form of outer intuition) as that within which all such constructions must take place. I have discussed this 1790 distinction at length elsewhere and shall not go into it further here.↵

[8] As I suggested above, Allison takes a formal intuition to be "a determinate formal object that is intuited, e.g., a triangle" (p. 412).↵



References:

Onof, C. & D. Schulting (2015), Space as Form of Intuition and as Formal Intuition. On the Note to B160 in Kant's *Critique of Pure Reason*, the *Philosophical Review* 124 (1): 1–58.



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