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Making Sense of Kant's Schematism

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> The opaqueness and obscurity of the Schematism chapterthe chapter which Kant himself thought to be one of the most important pieces of the Critique, and to which Hegel paid tribute as being among the finest pages of the entire Kantian *oeuvre*—has often been stressed, with undertones ranging from wonder to irritation. From among the earliest statements we recall F. H. Jacobi's assessment of schematism as "the most wonderful and most mysterious of all unfathomable mysteries and wonders"..., and Schopenhauer's characterisation of schematism as a curiosity "which is famous for its profound darkness, because nobody has yet been able to make sense of it"....

> > Eva Schaper¹

The problem which Kant faces in the chapter on "The Schematism of the Pure Concepts of the Understanding" in his Critique of Pure Reason² is that of explaining how "intuitions" (or what we might be tempted to call sense experiences) can be subsumed under "categories" (or "pure concepts of the understanding"). I think that this raises issues concerning the possibility of intentional content which are of interest in their own right and of great importance for current philosophy of psychology³—and that these issues are largely independent of the general project and central doctrines of the first Critique. My reasons for this will emerge from the reflections which follow.

[&]quot;Kant's Schematism Reconsidered," Review of Metaphysics 18 (1964-65), 267-92, p. 270, n. 4. As given by Schaper, the sources of the internal quotations are: F. H. Jacobi, Werke, ed. G. Fleischer (Leipzig, 1812–1825), vol. III, p. 96, and A. Schopenhauer, Kritik der Kantischen Philosophie, Werke, ed. W. v. Löhneysen (Stuttgart, Frankfurt am Main, 1960-1963), Vol. I, p. 606.

All quotations are from Immanuel Kant's Critique of Pure Reason, trans. Norman Kemp Smith (second impression with corrections, Macmillan, London, 1933).

There is a large and growing literature on intentional content, including, e.g., Ruth Millikan, Language, Thought and other Biological Categories: New Foundations for Realism (Cambridge, Massachusetts: M.I.T. Press, 1984), Robert Cummins, Meaning and Mental Representation (Cambridge, Massachusetts: M.I.T. Press, 1987), and Jerry Fodor, A Theory of Content and Other Essays (Cambridge, Massachusetts: M.I.T. Press, 1990).

Kant's solution to his problem is notoriously unclear, and the secondary literature does little to clarify it.⁴ In this paper I examine his treatment of the problem, and try to make sense of his solution by transforming it into something which is both interesting and Kantian in spirit, even it is not quite what Kant originally intended. In doing this I deal only with the centrally important categories of SUBSTANCE and CAUSE, and I devote a lot of attention to less abstract concepts before I get to them. In line with the view that schematism is of interest in its own right, I do not get deeply involved in any issues about its contribution to the Analytic as a whole. The position I develop is, however, consistent with a straightforward account of the relationship between the Schematism and the other two main components of the Analytic—an account according to which the Deduction argues in an abstract

In particular, there is no sign of convergence in the interpretations of the Schematism advanced in the recent secondary literature in English. There is not even agreement on whether there is a genuine problem—or on its nature and significance. Furthermore, Kant's discussion of the schemata of ordinary concepts is seldom taken as seriously as it should be.

The commentaries on the Schematism are many and varied. There are authors, like H. J. Paton (Kant's Metaphysic of Experience, London, Allen and Unwin, 1936, Volume Two, Book VII), who are sympathetic and self-consciously Kantian, but ultimately unhelpful because they remain bound within their own expanding super-Kantian labyrinths. There are those, like Norman Kemp Smith (A Commentary on Kant's "Critique of Pure Reason," Second Edition, London, Macmillan, 1923, pp. 334–42) and Robert Paul Wolff (Kant's Theory of Mental Activity, Cambridge, Massachusetts, Harvard University Press, 1963, Book II, Chapter 1), who are usually sympathetic towards Kant, but tend to be somewhat impatient with and dismissive of the Schematism. There are those like G. J. Warnock ("Concepts and Schematism," Analysis 9 (19948/9), 77-82) and Jonathan Bennett (Kant's Analytic, Cambridge University Press, 1966, Chapter 10), who are clear and responsive to Kant's text, but too unsympathetic to find much of value in the Schematism. There are those, like Eva Schaper (op. cit.), who insist on the significance of the Schematism, especially in relation to later philosophical developments, but do little justice to the details of the text. There are far too many publications which are fundamentally confused even about quite straightforward points in the Schematism. Finally, the authors of two of the most distinguished commentaries on the first Critique published in the past dozen years, Henry Allison (Kant's Transcendental Idealism: An Interpretation and Defense, New Haven, Yale University Press, 1983, Chapter 8) and Paul Guyer (Kant and the Claims of Knowledge, Cambridge University Press, 1987, Chapter 6), are sympathetic, thorough and sober, but much too modest on Kant's behalf about the central claims of the Schematism. Despite this, they arrive at very different interpretations of it, with Allison insisting that categorial schemata are pure intuitions, while Guyer construes them as temporal concepts which are correlated with and explain the empirical use of ("pure") categories.

My own conception of the function of schemata is broadly similar to that of Peter Krausser in "Kant's Schematism of the Categories and the Problem of Pattern Recognition," Synthese 33 (1976), 175–92, and has affinities to that adumbrated on p. 289 of Robert B. Pippin, "The Schematism and Empirical Concepts," Kant-Studien 67 (1976), reprinted in Ruth F. Chadwick and Clive Cazeaux (eds.), Immanuel Kant: Critical Assessments—Volume II: Kant's Critique of Pure Reason (London, Routledge, 1992), 286–303.

and general way *that* the categories *must* apply in experience, the Schematism attempts to show *how* it is *possible* to apply them to objects of experience, and the Principles aim to establish the fundamental *a priori* truths which supposedly *result from* their application.

My excuse for engaging rather freely in regimentation and reconstruction—and even, on occasion, imposition—is not only that this is virtually unavoidable with a text as opaque, as inconsistent in its use of terminology, and as full of apparent contradictions and architectonic red herrings as the *Critique of Pure Reason*, but also that something which more nearly approximates plain interpretation yields little insight into the philosophical nature of Kant's project in the Schematism, making it appear a confused and frustrating affair of merely local interest to Kant scholars. As I have suggested, there is far more to it than that.

Before we turn to the problem, I note that at A138 = B177 Kant equates "the subsumption of intuitions under pure concepts" and "the application of a category to appearances [i.e., to empirical objects]" (my emphases). This is a little misleading, for subsumption and application are different kinds of relation. Notwithstanding Kant's frequently lax use of the term (as in the first sentence of the Schematism), subsumption is a relation between representations and representations (where "representations" are ideas, which include both concepts and intuitions). Application, on the other hand, is a relation between representations and the things which they represent. To illustrate these points: the concept MAMMAL subsumes the concept HORSE, and both of these subsume the singular idea ELIZABETH'S FAVOURITE HORSE; but neither concept subsumes the animal which this idea represents (if there is one), even though both apply to it—as does the idea itself.

Furthermore, a concept's subsuming an intuition is not invariably equivalent to its applying to an empirical object. First, there may be no object corresponding to an intuition, as in hallucination. In this case one could subsume the intuition under a concept without thereby applying the concept to an object. Second, even though our basic access to empirical objects is through intuition, objects can be identified by means other than intuitions (e.g., definite descriptions), and this allows for the possibility of our applying a concept to an object without subsuming an intuition of the object under that concept.

It will become obvious, and it is of great significance, that Kant's problem in the Schematism is, as I have indicated, directly concerned with the subsumption of intuitions under categories rather than the application of categories to empirical objects. It is, however, convenient to use subsumption talk and application talk interchangeably, and in this paper I sometimes follow Kant in doing so, but always subject to the qualification that, in both his mouth and mine, "C applies to x" is to be understood as short for "C applies to x in virtue of its subsuming an intuition which represents x."

The question of how intuitions can be subsumed under categories raises the more general question of how they can be subsumed under concepts of any type. Sometimes Kant talks as if less abstract concepts present no problem (see, e.g., A137 = B176). But elsewhere he seems to assume that there is a problem concerning their application, e.g., at A140–142 = B179–181, where he discusses the concepts MULTIPLICITY, TRIANGLE and DOG. The truth is that Kant rightly thinks that the subsumption of intuitions under categories is *more* problematic than their subsumption under mathematical and ordinary empirical concepts.

A passage in the Prolegomena is suggestive of why this is so.

There is in fact something captious about our pure concepts of the understanding, in respect of the temptation to a transcendent use of them; for that is what I call the use that goes beyond all possible experience. Not only that our concepts of substance, force, action, reality, etc., are quite independent of experience and contain no appearance of the senses, consequently in fact seem to refer to things in themselves (noumena); but also, to strengthen this supposition still further, they contain in themselves a necessity of determination which experience never attains. The concept of cause contains a rule according to which one state follows from another necessarily; but experience can only show us that one state of things often or, at most, commonly follows another, and can procure neither strict universality nor necessity, etc. (Prolegomena⁵ ¶33)

This explanation of why we are tempted to apply the categories to things in themselves mentions two possible reasons for thinking that they do not apply to empirical objects given in experience. First, the categories are "quite independent of experience and contain no appearance of the senses." Their contents, in other words, do not include or involve anything sensory at all. Second, the categories "contain in themselves a necessity of determination which experience never attains." Less cryptically, they require for their application to objects determinations of these objects—i.e., properties of them and/or relations between them—which are never simply given in intuition, e.g., the relation of necessary connection which is required between cause and effect.⁶

With this as background, let us consider the opening paragraph of the Schematism, where Kant offers a simple general account of the subsumption of an intuition under an ordinary concept, as follows.

Immanuel Kant, Prolegomena to any Future Metaphysics that Will be Able to Present Itself as a Science, trans. Peter G. Lucas (Manchester University Press, 1953).

As this suggests, a central component of Kant's reply to Hume—involving his account of how the notion of necessity can be applied to objects given in intuition—is to be found in the Schematism (cf. Guyer, op. cit., p. 160).

In all subsumption of an object under a concept the representation of the object must be ho-mogeneous with the concept; in other words the concept must contain something which is represented in the object that is to be subsumed under it. This, in fact, is what is meant by the expression "an object is contained under a concept." Thus the empirical concept of a *plate* [and here he must mean an intuition of a plate] is homogeneous with the pure geometrical concept of a *circle*. The roundness which is thought in the latter can be intuited in the former.⁷ (A137 = B176)

What does "homogeneous" mean in this passage? As I would like to understand Kant, an intuition, i, and a concept, C, are homogeneous if and only if C-ness is part of the *content* of i. Here and elsewhere in this paper I use the word "content" in the sense which is now common in the philosophy of mind and language. The relevant implication is simply that an intuition of a plate is homogeneous with—and so falls under—the concept CIRCLE if the intuition represents the plate as being circular.

One attraction of this interpretation is that it does not require that there be any intrinsic resemblances between the plate intuition and the concept CIR-CLE, or that either of these two representations should *possess* the property of circularity in common with the plate itself. All that is necessary is that both *represent* it. Another attraction is that the interpretation makes the account of subsumption which Kant means to be giving quite as trivial and indisputable as he suggests it is. For, on my understanding, what Kant in effect does in the quoted passage is to take an obvious (albeit incomplete) account of subsumption and apply it straightforwardly to the special case of a concept's subsuming an intuition. The relevant account states simply that one representation subsumes another if the content of the latter includes the content of the former.⁸ This is analytic, as is the corresponding statement for the special case in which an intuition is subsumed under a geometrical concept.⁹ It is therefore not surprising that Kant should suggest that subsumption is not problematic in such a case.

But in the second paragraph of the Schematism he immediately goes on to tell us that there is a problem in the case of the categories, since they are "quite heterogeneous from all empirical intuitions, and indeed from all sensible intuitions" (A137 = B176). Thus he seems to be claiming that there is no

In my discussion of this passage I assume the correctness of the Vaihinger emendation cited by Kemp Smith in a footnote and incorporated in his translation.

It must be emphasized that this specifies only one sufficient condition for subsumption, but it covers the most basic case, and we can make a great deal of headway without invoking a complete account.

This does not imply that a judgment involving the subsumption of an intuition under a concept is analytic. Consider, e.g., the judgment *This is round*, where the "this" goes proxy for a plate-intuition which represents its object as round. In order for this judgment to be true, it is necessary that there be an object corresponding to the intuition which is in fact round, and this cannot be established merely by an analysis of the representations concerned.

overlap whatever between the content of any category and the content of any intuition. How, then, is it possible for a category to subsume an intuition?

Kant's immediate and too hasty reply is as follows.

Obviously there must be some third thing, which is homogeneous on the one hand with the category, and on the other hand with the appearance, and which makes the application of the former to the latter possible. This mediating representation must be pure, that is, void of all empirical content, and yet at the same time, while it must in one respect be intellectual, it must in another be sensible. Such a representation is the transcendental schema. (A138 = B177)

As many others have observed, this move is (on the face of it) very suspicious. How can it possibly help to introduce a third representation (R) between a category (C) and an intuition (i) which it is supposed to subsume? For even if C and R are to some extent homogeneous in the sense that they share some of their content, and R and i are likewise partly homogeneous in the same sense, it still does not follow that C subsumes i. Kant appears to be committed to the hypothesis that there is no common content between C and i, and if this is so one cannot change the fact merely by introducing a third representation which happens to share some content with each. Transcendental schemata cannot, it seems, solve the problem of subsumption if, as Kant claims in this passage, they are simply intermediate representations.¹⁰

Fortunately Kant does not stick to his first proposal on transcendental schemata, and he in fact leaves plenty of room for interpretation and reconstruction. I suggest that the best way of finding out what a schema ought to be is to start by looking at what Kant says at A140–142 = B179–181 about the schemata of the concepts MULTIPLICITY, TRIANGLE and DOG. In the light of the passages I have quoted so far, it is surprising that Kant believes that such concepts require schemata, but it is clear that he is committed to this view.¹¹ I think, moreover, that this commitment is warranted, and that an

There is, however, a workable interpretation on which transcendental schemata are, after all, intermediate representations. I discuss this interpretation briefly on the last two pages of this paper.

Many commentators simply ignore this fact. Others go so far as to deny it, e.g., Paul Guyer (op. cit., pp. 163-65), who claims that such concepts "are their own schemata" (p. 163). Lauchlan Chipman ("Kant's Categories and their Schematism," Kant-Studien 63 (1972), reprinted in Ralph C. S. Walker (ed.), Kant on Pure Reason, Oxford University Press, 1982, 100-116, pp. 106-7) agrees with Guyer with respect to empirical concepts like DOG, but recognises that Kant thinks that the schemata of mathematical concepts like TRIANGLE are distinct from those concepts. There is strong textual evidence for this, e.g., Kant's saying that "it is schemata, not images of objects, which underlie our pure sensible concepts [like TRIANGLE] (A140 = B180, my emphasis), and that "These images can be connected with the concept only by means of the schema to which they belong" (A142 = B181, my emphasis). Such claims are clearly at odds with the view that these concepts are schemata. The evidence that both Chipman and Guyer give for saying that a concept like DOG is its own schema is Kant's claim that the concept DOG "signifies" a schema (A141 = B180), but I see no warrant at all for

understanding of why this is so will provide the key we need to unlock the Schematism.

There are no crucial philosophical points raised by the concept MULTI-PLICITY which cannot be illustrated adequately by means of the concept TRIANGLE. I will therefore frame my discussion of the relevant issues exclusively in terms of the latter, but in doing so I depend upon Kant's treatment of both.¹²

On the face of it Kant thinks that the concept TRIANGLE requires a schema only because no particular *image* of a triangle could do justice to all triangles:

... it is schemata, not images of objects, which underlie our pure sensible concepts. No image could ever be adequate to the concept of a triangle in general. It would never attain that universality of the concept which renders it valid of all triangles, whether right-angled, obtuse-angled, or acute-angled; it would always be limited to a part only of this sphere. (A140–141 = B180)

Kant's implied criticism of simple imagist accounts of concepts and concept application is obviously correct. But this does not give him a reason for introducing schemata rather than simply opting for a notion of concepts on which the problem does not arise.

The situation looks no better when we consider that Kant tells us immediately before this passage that a schema in a case like this is a "representation of a universal procedure of imagination in making an image for a concept" (A140 = B179–180), and he reaffirms this later. Thus it appears that someone who possesses the schema of *triangle* has the capacity to form images of triangles of all possible shapes. But this seems to have nothing to do with the subsumption of intuitions under the concept, unless Kant has it in mind that the mechanism of subsumption involves the use of the schema to generate images of triangles until one finds one which matches the given intuition—or recognises that one is not going to be so lucky. This thought, however, is absurd.¹³

construing this notion of signification as identity. This claim, moreover, immediately follows the assertion that "an object of experience or its image is [even less] adequate to the empirical concept" than to a pure sensible concept (A141 = B180). This is surely meant to be understood as a reason for the introduction of separate empirical schemata. (The passage to which these last two textual references apply is reproduced in full on p. 789 of this paper.)

I will also abstract from the fact that TRIANGLE is a pure sensible concept which is supposed to apply primarily to a priori spatial constructs and treat it rather as a simple empirical concept. This no doubt results in a distortion of Kant's philosophy of geometry, but the approach is justified within the context of the Schematism, which is concerned with entities in the empirical domain and their relation (through intuition) to categories and other concepts.

There is nonetheless at least one commentator who is quite willing to ascribe it to Kant. See Bennett, op. cit., p. 141f.

Fortunately, Kant makes it clear in a passage in "The Postulates of Empirical Thought in General" that someone's possessing the schema of *triangle* implies that he has abilities which go beyond that of constructing images of triangles:

... the formative synthesis through which we construct a triangle in imagination is *precisely* the same as that which we exercise in the apprehension of an appearance, in making for ourselves an empirical concept of it (A 224 = B271, my emphasis)

One thing which this suggests is that the schema of *triangle* involves not only the capacity to construct images, but also the capacity to recognise triangles and triangle-intuitions. And this is directly relevant to the question of subsumption, for one cannot subsume an intuition under the concept TRI-ANGLE without recognising it as a triangle-intuition.

However, it is not clear why the concept *itself* should not be held to incorporate the capacity exercised here. Why should we not say, in other words, that full possession of a concept essentially involves the recognitional and classification skills which are manifested in its use?¹⁴ This thought is not, after all, at odds with the general spirit of Kant's treatment of concepts, and it also does justice to the fact that we would not normally be willing to attribute a concept to someone who lacked these skills. It is not at all clear, then, that we need to invoke an *additional* item—a schema—in order to explain how the application of a concept is possible.

The last clause in the passage I have quoted from the Postulates suggests an answer to this challenge. For, if Kant is right to claim that we exercise a certain "formative synthesis" in "making for ourselves an empirical concept" (my emphasis), then the capacity for this synthesis must be independent of and prior to that concept. Since it is reasonable to assume that possession of a schema involves this pre-conceptual capacity, it follows that schemata are distinct from concepts. Furthermore, if the exercise of such a capacity (perhaps in combination with other skills) is essential to the relevant kind of recognition, then schemata also have a crucially important role to play in the explanation of how it is possible to subsume intuitions under concepts.

But can we make sense of the idea of a pre-conceptual capacity for synthesis which is exercised in both the formation and the application of concepts? I

I say "full possession of a concept" here in order to duck the objection (see, e.g., Bennett, op. cit., p. 146 and Chipman, op. cit., p. 109) that it is in some sense possible for someone who lacks these skills to possess a concept—as, e.g., we might want to say that Hilary Putnam has the concepts BEECH and ELM even though he cannot distinguish between the trees to which they apply. It is not, however, necessary to make an issue of this qualification, for a general account of concept application clearly presupposes a satisfactory account of concept application by those who possess them in the fullest sense.

think that we can—by means of the following picture (which applies in detail only to the most simple concepts).

Taken in itself, an intuition (i.e., an "undetermined" intuition) is a bare sensation which is totally bereft of content or meaning. Its having any element of content (or being "determined") is not an intrinsic property of the intuition, but is, at least in part, a matter of its somehow being grouped with other intuitions (both actual and possible) which share the same content (as well as with actual and possible images with the same content, but for the sake of brevity I will omit this qualification from now on). For example, in order for one of an agent's intuitions to have the content triangle, i.e., in order for it to represent something as a triangle, he must at some inchoate level be disposed to place it in a certain similarity-class of actual and possible intuitions all of which, from a conceptual point of view, could be described as intuitions of triangles.¹⁵ I do not mean to suggest here that he should be able to think about and classify all the relevant intuitions in the same way, but only that he should be disposed to respond to them in appropriately similar ways. Likewise, in order for his intuition to have the content green, it is necessary for him to be disposed in the same primitive way to "place" it in another similarity class of intuitions, all the members of which will represent green.

There are three key points connected with these thoughts which I would like to emphasize.

First, the groupings of intuitions with which I am concerned are not based on the recognition of antecedently existing contents, but are themselves at the heart of what *constitutes* an intuition's having representational content. Without the groupings the content is impossible.

Second, such groupings are not simply *given* in intuition itself, for the totality of intuitions could in principle be assigned to equivalence classes in an indefinite variety of ways, including numerous ways which completely fail to match our actual grouping-dispositions. This point does not gainsay the fact that in experience we naturally take the basic contents of an intuition (which correspond to the different similarity classes to which it belongs) *as* given—or *as if* given. But our taking them thus is simply a reflection of the fact that the processes which yield these groupings and the associated contents are neither directly subject to our control nor directly accessible to consciousness. ¹⁶ What is in the relevant minimal sense given in intuition cannot be ascertained by inspection, but only by reflection and analysis. ¹⁷

This grouping synthesis should be distinguished from the synthesis which combines the manifold of intuition in such a way as to constitute the particular intuition in question. Kant unfortunately assimilates these two forms of synthesis at A105.

I believe that it is because of these features of the processes that Kant describes schematism as "an art concealed in the depths of the human soul, whose real modes of activity nature is hardly ever likely to allow us to discover, and to have open to our gaze." (A141 = B180-181) It is essentially for the same reason that he describes

Third, the intrinsic properties possessed by our intuitions cannot on their own explain why these intuitions have the contents which they do. In the sort of case with which we are now concerned, these properties must be relevant to the groupings to which intuitions belong and thus to the contents they have, for otherwise those contents would be purely arbitrary. But on their own the intrinsic properties of intuitions determine numerous similarity classes which, again, fail to match our actual grouping-dispositions. These dispositions must therefore involve something which goes beyond the intuitions themselves.

The crucial outcome of all this is that the groupings underlying the contents of our intuitions are not found, but made. In short, they are, as I have suggested, genuine and spontaneous syntheses.

The next point I want to establish is that schemata—which embrace the capacities, dispositions and processes involved in such syntheses¹⁸—are in-

imagination—the power of synthesis—as "a blind but indispensable function of the soul, without which we should have no knowledge whatsoever, but of which we are scarcely ever conscious." (A78 = B103) These descriptions are, moreover, justified by the fact there is no reason to think that the laws and mechanisms involved in the processes of schematism in particular, and imaginative synthesis in general, should be transparent or accessible to the subject.

Peter Krausser makes substantially the same point when he says "It is important to note: 'Given' here does *not* mean 'phenomenologically' given! The phenomenologically given is constituted through and by the synthetic processing of the sensible manifolds. The sensible manifolds themselves are 'given for' the syntheses, i.e. to be processed by them." (*op.cit.*, p. 190, n. 2)

I talk about schemata primarily (but not exclusively) in loose dispositional terms mainly because I don't think it profitable to enter into detailed discussion about their "logical type." Within a few pages (A140-147 = B179-186) Kant describes them as representations, rules, products of imagination, syntheses, phenomena of agreement and sensible concepts. If pressed to take a stand, my inclination would be to define a schema canonically as the (repeatable) process-type which yields the relevant synthesis. In terms of this suggestion, Kant is most accurate when he describes a schema as a rule, for there is a minimal sense in which a rule is in effect a process-type, viz., the sense in which it is not something which an agent obeys or follows, but something which a particular sequence of event tokens fits or instantiates. In the stronger sense in which a rule is followed rather than merely conformed to, schemata cannot be rules and also operate in the way I have described. On pain of circularity, they also cannot be representations or concepts if they are to play an essential role in a general account of application and subsumption. At the same time, Kant's various loose descriptions of schemata are not simply capricious, since whenever we discuss the operations of schemata construed as process-types there will always be corresponding representations, rules, products of imagination, syntheses, phenomena of agreement, and concepts at the forefront of our attention.

But whatever the logical type of schemata themselves, possession of a schema is clearly a disposition or capacity. This claim is not subject to Frank J. Leavitt's repudiation of what he calls "the dispositional interpretation of Kant's schematism" in "Kant's Schematism and His Philosophy of Geometry" (Studies in the History and Philosophy of Science 22 (1991), 647–89), for Leavitt criticises only the view that a schema is "a disposition or an ability to connect concepts and images" (p. 654, my emphasis), which obviously cannot explain how we subsume intuitions under con-

deed pre-conceptual.¹⁹ The case for this is relatively straightforward, for there are a number of characteristic features of concepts and concept-possession which schemata need not involve. Schemata and their products are not, e.g., typically accessible to consciousness; when exercised, they yield discriminating responses rather than articulate, classificatory judgments; and, significantly, they do not involve the capacity to make analytic judgments, like Every triangle is a closed figure and No completely green square is red, on the basis of reason, or the capacity to make general synthetic judgments, like Some red things are not squares and No horse is a cow, on the basis of experience. There is therefore good reason to regard schemata as more primitive than concepts.²⁰

Given the picture which I have been sketching, it is clear that possession of the schema of triangle is, as suggested earlier, a precondition of someone's forming the concept TRIANGLE, or indeed grasping it fully. More significant for our purposes is that it is necessary to exercise the schema in order to subsume an intuition under the concept. For in the absence of the schema the intuition lacks the content necessary for such subsumption, and it cannot therefore be homogeneous with the concept.

Let us pause at this point to review the ground we have covered with respect to concepts like TRIANGLE and the intuitions which they subsume. We saw, to begin with, that if subsumption is viewed as a purely logical relation between representations, then there is no problem arising from such a

cepts. The synthesizing dispositions to which I appeal in explicating schemata have nothing in common with the question-begging dispositions invoked by this view.

Part of the problem of making sense of Kant here stems from the inadequate recognition of the importance of imagination in the architectonic of the first Critique, due perhaps to Kant's understandable failure to appreciate the full significance of his breakthrough recognition of the role of imagination in perception and cognition. This results in an unfortunate tendency to assimilate imagination to judgment, making it into an overtly conceptual affair.

This remark applies only to the fairly rich notion of a concept to which Kant is tacitly committed in the Critique of Pure Reason. But there is also a more rudimentary notion of a concept on which it is perhaps plausible to attribute concepts to brutes and infants as well as to adult human beings and older children, and schemata can reasonably be understood as concepts in this sense. It is, I believe, the more rudimentary notion of a concept which is in question in D. E. Bradshaw's "The Nature of Concepts" (Philosophical Papers 21 (1992), 1-20), which contains some interesting ideas which are implicitly relevant to our understanding of schemata.

20

In this connection I would like to stress that, although I necessarily make use of conceptual language in explaining these syntheses, the explanation does not presuppose that the agent concerned already possesses the relevant concepts. It is precisely in this respect that I believe my account of imaginative synthesis improves on those of Strawson and Young, both of whom think that Kantian imagination essentially involves the application of concepts. See P. F. Strawson, "Imagination and Perception," in Lawrence Foster and J. W. Swanson (eds.), Experience and Theory (London, Duckworth, 1970), 30-54 and J. Michael Young, "Kant's View of Imagination," Kant-Studien 79 (1988), 140-64.

concept's subsuming an intuition, since this is simply a matter of the intuition's having an appropriate representational content. From this perspective there is therefore no need for schemata. It then emerged that even if we consider subsumption as something which someone does—viz., recognise that one representation (logically) subsumes another—there is still no problem about how a person can subsume an intuition with an appropriate content under a concept, for his possession of the concept can itself be understood to incorporate this very ability. So once again there is no need for schemata. But it has now become apparent that an intuition's having the content which is required for it to be subsumed under a given concept is not a brute fact about it which is given in the intuition itself. It is, rather, a product of a pre-conceptual synthesis involving the relevant schema. Thus a schema has, after all, a crucially important role to play in explaining how concept application is possible.

Let us turn, then, to the concept DOG, which seems to me far more significant than Kant allows.²¹ For, in an important sense of "substance," the concept DOG is a substance-concept. In other words, it is not possible for something to be a dog unless it is a substance. This suggests that the schema of a concept like DOG must incorporate something corresponding to the notion of a substance. A careful examination of the nature of such a schema may therefore reveal something crucial about the schema of the concept SUBSTANCE itself.

In the sense of "substance" to which I am appealing here, a substance is roughly what Aristotle would have classified as a *primary substance*, *viz.*, a particular spatio-temporal continuant which bears properties, is subject to change through which it persists, and which can itself come to be and cease to be. Kant uses the term "substance" in this sense in the *Critique*, but he also uses it in another sense which he regards as far more fundamental. When necessary I will distinguish between the two by referring to them as "individual substance" and "ultimate substance" respectively.²² Ultimate substance is what we might call "the substance of the world." For Kant, it underlies all phenomena and persists through all change, but it not itself sub-

It is, however, noteworthy that Kant's remark about schematism being "an art concealed in the depths of the human soul" (see note 16, above) occurs in the middle of his discussion of the schema of dog.

This distinction apparently shows up in, e.g., the differences between Kant's statement of the First Analogy in the two editions of the Critique, the first of which (at A182) seems to be about individual substance, while the second (at B224) is clearly about ultimate substance. The distinction is not, however, officially recognised by Kant, whose table of categories (A80 = B106) has space for only one concept of substance, which is presented as the relation of "Inherence and Subsistence," which corresponds to the notion of a logical subject. This is loose enough to cover both individual and ultimate substance, but it is clearly the latter which Kant would regard as substance properly so called.

ject to generation and destruction. Furthermore, it is the primary subject of predication in the sense that all properties, states and events subsist ultimately in it, and even individual substances can be seen as modifications of it.²³

I am interested in the application of both these concepts of substance, and will consider the question of whether there is a schema of ultimate substance later. But our immediate and more pressing concern is with the schema of *dog* and what it can teach us about the schema of *individual substance*.

Kant is not in fact very helpful on the difference between TRIANGLE and DOG in the Schematism. Apart from adding to the plausibility of some proposals which I have already made, the relevant passage does little more than suggest that concepts like DOG are more problematic:

Still less is an object of experience or its image ever adequate to the empirical concept; for this latter always stands in immediate relation to the schema of imagination, as a rule for the determination of our intuition, in accordance with some specific universal concept. The concept 'dog' signifies a rule [i.e., a schema] according to which my imagination can delineate the figure of a four-footed animal in a general manner, without limitation to any single determinate figure such as experience, or any possible image that I can represent *in concreto*, actually presents. (A141 =B180)

The second of these two sentences tends to support my claim that in his terms the relevant schemata are concerned not only with the construction of images, but also with the recognition of intuitions. Kant's description of a schema as "a rule for the determination of intuition" helps to confirm this point, and is also in line with my suggestion that the contents of intuitions actually depend upon schemata.

But what are the important differences between the schema of *dog* and that of *triangle*? My suggestion is that the schema of *dog* not only groups certain actual and possible intuitions into a similarity class in the same way as the schema of *triangle*, but that it also segments this class of intuitions into subgroups in such a way that the intuitions belonging to a common sub-group could be described as intuitions of the *same* dog. Or, to get at the same point in a different way, it involves *identificatory syntheses*—imaginative, but

The characterisations of individual and ultimate substance given in this paragraph run together two aspects of these concepts which Kant in principle keeps apart. These aspects are, on the one hand, the purely logical necessary and sufficient conditions of the concepts' application (roughly subject of predicates in the case of individual substance, and ultimate subject in the case of ultimate substance), and, on the other hand, the distinguishing marks of items in the world of experience which satisfy the concepts (roughly continuant which persists through change in the case of individual substance, and the absolutely persisting in the case of ultimate substance). I do not think it is necessary to make this distinction in order to grasp the nature of schemata, but it is crucial to an understanding of the Analytic as a whole, and we cannot unravel at least one major tangle in the Schematism without invoking it. I therefore take cognisance of the distinction on pp. 796–97.

principled, unifications of groups of distinct intuitions within the relevant similarity class. This additional complexity is required simply because a momentary thing, however dog-like it may be, cannot be a dog. Thus one cannot subsume an intuition under the concept DOG without being disposed at some level to treat this intuition as a manifestation of a persisting object which could also appear through other intuitions. And doing this is largely a matter of tacitly connecting the intuition with other actual and possible dog-like intuitions in such a way that it becomes part of a coherent system of past, present, and anticipated future intuitions which collectively represent a single, persisting dog.

Nothing like this applies to TRIANGLE, for any intuition which represents something as maximally like a triangle thereby represents a triangle. Thus, setting aside the possibility of simple perceptual error, something which appears to be a triangle is one even if it is an instantaneous entity. But something which appears to be a dog may not be one. In other words, a dog-like intuition may not be an intuition of a dog. This is tied up with the fact that the concept DOG essentially involves temporal identity conditions—you don't know what a dog is unless you know what counts as the same dog at different times. The schema itself must contain something preconceptual corresponding to this, for someone could have the capacity for making discriminating responses to dogs, and indeed to individual dogs, without having the sophisticated intellectual paraphernalia required for concepts.

These considerations show why, as Kant suggests in the first clause of the above passage, a (single) dog intuition is even less adequate to the concept DOG than a triangle intuition is to the concept TRIANGLE. For the schema of *dog* not only brings it about that certain intuitions have content, but also that they are apt to represent individual substances of a certain kind. And this implies that in the absence of such a schema an intuition could not present an independent object to which a substance concept might be applied.²⁴

This brings us to our first "transcendental," or categorial, schema, viz., the schema of *individual substance* itself. Here, too, we must follow the argument where it leads, for there is little in Kant's text to guide us. We will, however, arrive at a destination where adequate anchorage in the *Critique* is possible.

What is immediately evident is that the schema of *individual substance* must, like the schema of *dog*, involve a disposition to unify various distinct

My discussion of the schema of dog implies that it is possible for someone to see without inference that something is a dog. More generally, it implies that the range of possible sensory contents, and thus the range of what can be perceived directly, includes kinds, like dog and deodar, and therefore goes way beyond the traditional sensory qualities and relations like red, round and between. Romane Clark argues effectively for this view from a non-Kantian perspective in "Seeing and Inferring," Philosophical Papers 22 (1993), 81-97.

intuitions and thereby treat them as if they are manifestations of a single underlying object. But in this case the unifying disposition is far more general. It does not apply only to the intuitions in some restricted class, e.g., the doglike or cat-like intuitions, but could in principle apply to any intuition whatever (in relation to other actual and possible intuitions). This includes intuitions that do not fall under any particular substance-concept (or corresponding schema) which is within the grasp of the subject, for it is clearly possible to recognise something as an individual substance without at any level recognising it as a particular kind of substance.

It is important to notice that the identificatory syntheses which this general unifying disposition yields cannot be arbitrary if they are to perform their essential function—the function of bringing it about that the relevant intuitions have contents which are suitable for the representation of continuous, independent objects, and therefore that those intuitions fall under the concept INDIVIDUAL SUBSTANCE. These syntheses must obviously be systematic and coherent, and conform to appropriate general principles concerning the conditions under which all the members of a given set of intuitions could represent a single continuous object. (We may not, however, be able to specify these principles, for it is possible that they are beyond our cognitive grasp.)

There is, moreover, an important further constraint, viz., that the identificatory syntheses produced by the schema of individual substance must be completely congruent with those produced by every particular substanceschema. If x and y are the same dog, cat, table, or whatever, then they must be the same substance. This congruency requirement applies not only to actual substance-schemata, but to all possible substance-schemata, since any possible concept whose application would be at odds with the concept INDI-VIDUAL SUBSTANCE cannot be a substance-concept.

I do not see how the congruency requirement can be satisfied unless the schema of individual substance itself shapes particular substance-schemata and constrains their development. What I am suggesting is that this schema involves not only a first-order general unifying disposition, but also a higherorder (transcendental?) disposition to develop restricted kind-schemata which vield identificatory syntheses matching those produced by its own first-order part, and not to develop restricted kind-schemata which fail to satisfy this condition. At an abstract and general level, then, the schema of individual substance determines which of our intuitions represent objects in the world of experience. And in so far as it does this, thereby constituting the world of our experience as a world of objects,25 it plays an extremely significant role in determining the form of our intelligence.

Notwithstanding the appearances, this claim need not lead to "Transcendental Ideal-25 ism," or any other form of idealism. The schema of individual substance influences the way in which we represent the world, and the realist is free to grant this while still

To return to the text, these thoughts are, with minor qualifications, in line with Kant's views as expressed in at least two places in the *Critique*. One occurs in the Transcendental Deduction in A, in a passage which is in part about transcendental schemata even though it does not mention them explicitly:

A pure imagination ... is thus one of the fundamental faculties of the human soul. By its means we bring the manifold of intuition on the one side, into connection with the condition of the necessary unity of pure apperception on the other. The two extremes, namely sensibility and understanding, must stand in necessary connection with each other through the mediation of this transcendental function of imagination [i.e., transcendental schematism], because otherwise the former, though indeed yielding appearances, would supply no objects of empirical knowledge, and consequently no experience. (A124, my emphasis)

The other occurs in the Chapter entitled "The ground of the distinction of all objects in general into phenomena and noumena," in a passage which refers directly to schemata:

Now the employment of a concept involves a function of judgment whereby an object is subsumed under the concept, and so involves at least the formal condition under which something can be given in intuition. If this condition of judgment (the schema) [sic] is lacking, all subsumption becomes impossible. For in that case nothing is given that could be subsumed under the concept. (A247 = B304, my emphasis)

The key message in both these passages is that in the absence of transcendental schemata in general, intuitions cannot represent objects. There is a certain vagueness here arising from Kant's tendency to lump together all his categories—and, by implication, the associated schemata—and talk about them as if they were one. This goes along with his very broad and abstract notion of an object, which is extremely difficult to pin down. But Kant's general message implies, or at least suggests, that in the absence of a particular transcendental schema, intuitions cannot represent objects in the more specific sense of "object" which corresponds to that schema. And this in turn implies that without the schema of *individual substance* it is impossible for intuitions to represent objects as we ordinarily understand them.

What I have called the key message in these two quotations also adds to the plausibility of the central thesis of this paper, viz., that it is schemata which bring it about that intuitions have the intentional contents in virtue of which they can be subsumed under categories and other concepts.

maintaining that the schema is not determinative of the world itself. At the micro level the equivalent position is that the schema does not *constitute* objects in the world, but only makes it possible for us to *represent* them. I find the realist view far more attractive than Kant's alternative, but all that matters here is that his metaphysics is not presupposed by either the problem of schematism or its solution.

In dealing with the remaining two transcendental schemata with which I am concerned it is possible to be quite brief, especially as the precise details make no difference to my central thesis.

If there is a schema of *ultimate substance*, it must involve a systematic disposition to treat the general flow of intuitions as a manifestation of a single, permanent, indestructible substrate. This is in line with Kant's own words, although he does not here present the schema as a disposition or process:

The schema of substance is permanence of the real in time, that it, the representation of the real as a substrate of empirical determination of time in general, and so as abiding while all else changes. (A143 = B183)

It is, however, extremely difficult to get a grip on this schema and its operation. It is not clear, e.g., what sorts of responses to the flow of intuition—or what sorts of syntheses of our intuitions—characterise the relevant disposition. The one possibility which occurs to me is that it involves a systematic grouping together of all intuitions which are (on the face of it?) veridical, and which are thus taken (preconceptually) to represent an independent world. But this is inadequate: it does not seem to yield any appropriate form of intuitive content; it does not ring true to Kant; and it does not involve even a preconceptual commitment to a permanent substrate.

The real problem is, I think, that it is doubtful that there is a schema of ultimate substance. Or, to put the same point differently, there is no reason to believe that Kant is right to think that the form of our intelligence requires that the world as we experience it be represented at any level as having a single, indestructible substrate. This is not to say that we could not develop a concept of ULTIMATE SUBSTANCE and even find reason to apply it to the world of experience, but only that the possibility of the form of experience we enjoy does not presuppose a schema corresponding to this concept.

We come, then, to the category CAUSE and its schema. In the light of Hume's and Kant's views about the basis of causal judgments, it is evident that the schema of cause must involve a systematic general disposition to respond to certain ordered pairs of intuitions as instances of a pervasive general pattern which, to speak loosely, brings it about that at some preconceptual level the first member of any such pair is (in the circumstances) felt to necessitate the second. Kant's own words support this account of the schema of cause:

The schema of cause, and of the causality of a thing in general, is the real upon which, whenever posted, something else always follows. It consists, therefore, in the succession of the manifold [of intuition], in so far as that succession in subject to a rule. (A144 = B183)

The most basic manifestation of this schema is quite simple, viz., the systematic expectation of one type of intuition as a result of the stimulus of another.²⁶

In terms of my general picture of schematism, a pair of intuitions brought into synthetic connection by the schema of cause thereby come to represent a causal relationship between the entities for which they stand. In other words, they acquire the content of cause and effect, and are therefore subsumable under the category CAUSE. Thus one central aspect of Kant's reply to Hume's scepticism about causation (understood as a necessitating relation) must be that causal relations are, after all, represented in experience, and are in that sense given to consciousness. It does not help to reply that, on Kant's own reckoning, such causal relations are not simply found, but "put there" by means of a schematic synthesis. For in terms of the reasoning I have rehearsed, all properties and relations which are represented in experience are in exactly the same boat, including even traditional sensory qualities and relations like green, triangular, and between.

All the same, it must be admitted that there is a difference between the empirical and categorial contents of experience—one which accounts for the possibility of Hume's scepticism about necessary connections,²⁷ and which explains why the subsumption of intuitions under categories is more problematic than their subsumption under empirical concepts.

Kant hints at the nature of this difference when he says that, in contrast with mathematical and empirical schemata, a transcendental schema is concerned with a "formal and pure condition of sensibility" (A 140 = B179), and that it

... can never be brought into any image whatever ... [since it] is simply the pure synthesis, determined by a rule of that unity ... to which the category gives expression. (A142 = B181)

What this suggests is that an intuition's categorial contents, which are brought about by transcendental schemata, depend only on formal, or structural, considerations, and not on any of the intrinsic, "material" properties of that intuition.

Whether, e.g., an intuition has the content *individual substance* does not depend upon the intrinsic nature of the bare sensation which constitutes it, but only on the structural relations in which it stands to other intuitions. These structural relations are no doubt realised in the material properties of all the relevant intuitions and the material relations between them, but are not

The schema of *cause*, like the schema of *individual substance*, also no doubt involves a higher-order disposition which influences the form of our intelligence, in this case a disposition which structures our more specific causal expectations and thereby places constraints on what we are able to count as a causal regularity or causal law.

The difference does not, however, legitimate Hume's skepticism, which remains hostage to the considerations advanced in the previous paragraph.

defined by those material properties and relations. This is evident from the fact that an intuition of, say, my computer monitor and an intuition of a cart horse each have the content individual substance in virtue of belonging to a set of intuitions the members of which stand in the same structural relations to one another, even though these two sets of intuitions have no significant material properties in common. Thus any intuition whatever, regardless of its intrinsic properties, could represent—or fail to represent—an individual substance. It all depends on the subject's *other* intuitions and the abstract patterns they instantiate.

The case of elementary sensory contents like green and triangle is very different. As I suggested earlier, an intuition's having such a content depends in a fairly direct way on its intrinsic properties. More precisely, it depends upon the intuition's having one of a range of determinate intrinsic properties on the basis of which the relevant schema synthesizes a group of intuitions and thereby brings it about that every member of that group possesses the sensory content in question.²⁸ Much richer sensory contents, like dog, fall between elementary sensory contents and the categorial contents of intuitions, and the schemata giving rise to these contents depend upon both the intrinsic properties of the intuitions and the structural relations in which they stand to other intuitions. This is of course the reason why we were able to use such schemata as a means of coming to grips with the nature of transcendental schemata.

But, to return to the most elementary sensory contents, it must be stressed that their dependence upon the intrinsic properties of the intuitions concerned does not mean that all the intrinsic properties of those intuitions are relevant to their sensory contents, or that their sensory contents are themselves intrinsic properties (as Hume must have thought). For it is always something over and above intuitions, viz., schemata, that determines which of their intrinsic properties are relevant to their contents, and which contents are grounded in those properties. Intuitive contents presuppose schemata even at the most basic level.

Unfortunately this is not the end of the story. For, although there is much in the Critique of Pure Reason to support my reconstruction of Kant's schematism, there are also some significant points which are inconsistent with it and ought to be explained away. A thorough attempt at doing this would be a major task, so I will close my paper by looking briefly at just one broad and important issue which has the greatest potential for casting doubt on my position.

²⁸ This is somewhat oversimplified and must be taken as a specification of the limit case. Whether, e.g., an intuition of a part of a surface has the content green might depend to some extent on the intrinsic properties of intuitions of other parts of the surface which surround it, for it is well known that the apparent colour of an area is influenced by the colours of adjacent areas.

This issue is concerned with the distinction (mentioned in footnote 23 but so far ignored in the body of my text) between the *purely logical condition* which an item must satisfy for a given category to apply to it and what, in an effort to avoid begging any questions, I shall call the *criterion* for applying the category to items in the world of experience. In Kant's terms only the former is analytically tied to the "pure category," i.e., to the category properly so called. But this logical condition is too abstract to fix the application of the category in experience. Given only that something satisfies the concept INDIVIDUAL SUBSTANCE if it is a *subject of predicates*, it is completely indeterminate which items in the world are substances. Likewise, given only that an ordered pair satisfies the concept CAUSE if the first is a (logical) *ground* of the second and the second is a (logical) *consequent* of the first, it is completely indeterminate which items in the world are causally related. The application criteria for the categories are supposed to do away with this indeterminacy by the introduction of restricting temporal conditions.

Whatever the details, it is clear that the criterion of a category is meant to be a distinct concept which is related to that category by a synthetic principle of the form

Any item in the world of experience satisfies [Category C] if and only if it satisfies [the criterion of Category C].²⁹

The conceptual conjunction of a pure category and its criterion yields a third concept which could appropriately be described as the "naturalised category." Although the distinction between pure and naturalised categories has not previously been described in these terms, it is generally acknowledged to be present in the *Critique*, even by those who deplore it and would have Kant make do with the naturalised categories alone.³⁰

But now, to let the cat out of the bag, there is an interpretation of the Schematism which simply identifies transcendental schemata with what I have called the criteria of the corresponding categories, and in terms of which the main purpose of the Schematism is just to list these criteria without any attempt at justifying the principles which connect them with the pure categories. This interpretation is encouraged by the prejudicial practice of describing the naturalised categories as "schematised categories." But, as the reader

In Kant's terms any legitimate principle of this form must be both synthetic and a priori: synthetic, since category and criterion are supposed to be logically distinct; a priori, since no such principle could be subject to empirical checks, or do the job required of it if it were not necessary. The nature of the justification of these principles, and their relationship to Kant's "Principles of Pure Understanding," especially the Analogies, is important for someone who wants to make sense of the Analytic as a whole, but it is way beyond the scope of this paper.

³⁰ See, e.g., Smith, op. cit., pp. 195, 339-42, and Wolff, op. cit., pp. 216-17.

This terminology is due to Paton (op. cit., Volume Two, p. 41).

can easily verify, much of what Kant says in the Schematism and elsewhere can reasonably be taken to support the interpretation.³² It is, however, at odds with the celebrated passage in which Kant describes schematism as "an art concealed in the depths of the human soul" (see footnote 16), and Paul Guyer, who is responsible for the most sustained defence of the interpretation,³³ goes out of his way to downplay this passage as unnecessary and misleading dramatisation. The interpretation is also quite plainly in conflict with my own reconstruction, in terms of which a transcendental schema is, roughly, a synthesizing disposition which brings it about that intuitions have the content necessary for them to be subsumed under the corresponding *naturalised* category.

What shall we say about this standoff? My suggestion, which accounts quite elegantly for many of the tensions and contradictions in the text, is that in the Schematism Kant was confusedly tackling two different tasks which he failed to distinguish (or to distinguish adequately). One was the rather boring job of closing unfortunate (self-made) gaps in the reasoning of the Critique by specifying criteria for the pure categories. The other was that of explaining how intuitions could have the contents needed for them to be subsumed under the naturalised categories (and other concepts), which is a further task, albeit one which Kant could not have formulated in the contemporary terms in which I have expressed it. It is also a much richer and more exciting project-which explains why Kant considers schematism to be so deep and significant. For, unlike the first project of simply naturalising the previously denatured categories, it provides a profoundly interesting account of how intuitions can be subsumed under them, and also yields a genuine, robust answer to Hume. Regardless of Kant's intentions, the independent philosophical interest of this second project is reason enough to count it as the real schematism.34

³² This includes Kant's first account of transcendental schemata at A138 = B177, in a passage quoted on p. 782 of this paper.

³³ See Guyer, op. cit., Chapter 6.

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