ABSTRACT. This essay attempts a re-reading of the meaning and import of "synthetic propositions a priori" in the light of two other background concepts in Kantian epistemology: Erklärung and Begründung. The significance of this pair of concepts lies in the fact that they represent the "philosophical motive" of Kant—leading him, inevitably, to take the "transcendental turn". (And, on this point, I believe that some commentators have reversed the dialectic of Kant's thinking: they make him take the "transcendental turn" first, and then envision the Erklärung and the Begründung.) And the distinction between the "sensible world" and the "intelligible world" was the consequence. Did this distinction also provide the ontological matrix for the epistemological distinction between "analytic propositions" and "synthetic propositions"? I take that to be evident. What is less evident is that Kant was more interested in the relation between the two worlds than in these worlds in isolation. He was concerned with demonstrating the possibility (i.e., the "transcendental possibility" and not merely the "logical possibility") of the sensible in the light of the intelligible. This he sought to do by elucidating (with the help of "transcendental arguments") the a priori conditions of possible experience. This was the hidden dialectic of the transformation of the image of mind, from the Lockean "mirror" to the Kantian "prism". The synthetic propositions a priori (I argue) articulate the relation of the a priori conditions of experience to the possible objects of experience. (That is why Kant takes the metaquestion, "How are synthetic propositions a priori possible?", to be the main problem of the Kritik der reinen Vernunft.) The significance of the work of Kant for what we moderns call the "philosophy of science" is noted in the conclusion.

The problem of synthetic propositions a priori has been a controversial issue in recent epistemology. The reason for the controversy has been twofold to say the least: firstly, the historical difficulties associated with the Kantian formulation of
the problem itself; and, secondly, the shifting concerns of contemporary epistemological inquiry. Nor are the two concerns unrelated. The former may have (in some measure) precipitated the latter—as the writing of the critics of Kant (Bertrand Russell, W.V.O. Quine, A.J. Ayer) illustrate. This might explain, too, the vogue of anti-Kantianism in some circles; but this need not concern us here. By focusing on the historical root of the controversy, I hope to clear one source of the contemporary misunderstanding.

I will argue that the Kantian formulation of the problem of synthetic propositions *a priori* is philosophically viable—even when examined by contemporary standards—provided that it be read in a different light than it has been by its critics; and, further, that such a rereading might show (by implication) where some misreadings may have gone astray. The motive of my essay, however, is not polemical but elucidatory.

I grant, too, the truth of Heidegger's observation (in his own problematic commentary, *Kant und das Problem der Metaphysik*, 3rd edition, 1962)—but without necessarily agreeing with the Heideggerian interpretation of the Kantian doctrines—that in this case of philosophic exposition, the decisive issue often is, not what it expressly says, but what it leaves unsaid "through what is said" as it were. However, it would be precarious, to say the least, to attempt to read what is unsaid through what is said, in this case—without some methodological principles of exposition and interpretation. Moreover, the elucidation of the thought of the more complex philosophers of the past requires a blending of two usually distinct methods, i.e., logical analysis and historical scholarship. Kant is one such philosopher. But, regrettabley, few are masters of both arts, and I too am aware of the risks involved in the combined methodology. Yet I remain equally convinced of its necessity here. The twofold ground for my reconstruction, then, explains the double-edge of my commentary.

I. **ERKLÄRUNG AND BEGRÜNDUNG AS THE MAIN MOTIVE OF THE TRANSCENDENTAL TURN**

The philosophical significance of the words *Erklärung* (roughly meaning "epistemic explanation") and *Begründung* (roughly meaning "epistemic grounding")—words which recur in their various permutations throughout Kantian texts—derives from the fact that they represent the main motive of the "transcendental turn" which Kant, in response to the ongoing philosophical debate of his time, was compelled to take.

For the dilemma confronting Kant, once he had awaken from his "dogmatic slumber", was: Is the object of representation to be assigned the maximal explanatory role, or is the representation of the object to be assigned the maximal explanatory role, in epistemic construction? Or, to state the problem in Kantian language: Either the object alone must make the representation possible, or the representation alone must make the object possible. The affirmation of the first alternative was empiricism; that of the second, idealism. Both alternatives were equally naïve and, to Kant's
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view, unacceptable. But it would be tedious to rehearse the dialectic of the debate, so well rehearsed in the histories of philosophy, here.

More to the point is to read Kant's formulation of the epistemological problems underlying the above dilemma (my translation): "... we experience, that something happens, we thereby presuppose that something precedes it, whence it follows by a rule ... for mere succession in my apprehension, when it is not determined by a rule in relation to its precedent, does not justify any succession in objects". The problem, as he saw it, was how to ground the perception of the temporal succession of events in the matrix of representation in order to provide a rational explanation of the contents of experience.

We know now that, among Kant's contemporaries, Hume alone understood this problematik of epistemology. However, Hume's attempts to recompose, as it were, the "rhapsody of perceptions" (Kant's expression) by means of the ineffable "propensity to believe" (Hume's expression) resulted in a thoroughgoing confusion of two distinct issues: i.e., the possibility of the succession (in some order) of perceptions, and, the possibility of the perception (in some order) of succession. Indeed, Hume's own belated dilemma—as he himself confessed it at the conclusion of the last part of his Treatise—may be taken as a dialectical expression of that confusion. Kant, undoubtedly, saw as much, and eventually more. And, seeing it, he passed the point of no-return. This is one source of his indebtedness to (and esteem for) Hume. However, Kant, in order to solve the epistemological problem, took a wholly different turn: i.e., seeking to evoke the a priori forms in order to ground/explain the order of experience.

Already in De mundi sensibilis atque intelligibilis forma et principiis (1770), the inaugural dissertation of Kant, we read a pair of epistemological theses:

1. The same sensibility condition, under which alone the intuition of an object is possible, is a condition of the possibility of the object itself.

2. The same sensibility condition, under which alone data can be assessed toward the formation of an intellectual concept of an object, is a condition of the possibility of the object itself.

—already the phrase, "the condition of the possibility of", makes its appearance here, before Kant had developed the system of categories, principles, and analogies which were to characterize his epistemology.

There is also a third thesis (ibidem), to the effect that the conditions of the possibility of objects, referred to in the above two theses, belong to the conceptual schema of the mind. But, only two years later, Kant himself felt compelled to raise the critical question: How can pure concepts of the understanding, which neither create their objects nor are created by them (unlike empirical concepts), be applicable a priori to the external world which we come to know only a posteriori? Kant raised this question (in so many words) in the aftermath of the critical commentaries of J.H.
Lambert and Moses Mendelssohn (both of whom he held in high esteem). Nevertheless, the question is indicative of Kant's "second thoughts", calling for a more thorough resolution of the epistemological problem. And, after four more years of reflection, Kant could write (not without some trepidation however) to Marcus Herz (in Zweig's translation): 5 "it must be possible to survey the field of pure reason, that is, of judgments that are independent of all empirical principles, since this lies a priori in ourselves and need not await any exposure from our experience . . .". The distinction between the "formal ground" of experience and the "material ground" of experience, upon which the possibility of the proposed inquiry rested, was yet to be made.

Subsequently, in the *Kritik der reinen Vernunft*, we read the "clue" to the discovery of *a priori* forms, within the field of pure reason (my translation): 6

> If we want to know how pure concepts of understanding are possible, we must inquire what the *a priori* conditions are, upon which the possibility of experience rests, and which lie at its ground, when everything empirical in the appearances is abstracted.

An explication of the expression 'the possibility of', which occurs in the above passage, is clearly in order:

A proposition is *logically possible* if, and only if, it is "intelligible", i.e., it does not entail self-contradiction (or, as Kant notes in the inaugural dissertation, "whatever is impossible contradicts itself"). I shall indicate in what follows this kind of possibility with a subscript as *possibility* 1. Since the class of the logically possible includes, as a subclass, the empirically possible, a proposition which is logically possible may or may not be empirically possible. But there can be no propositions, which are empirically possible and logically impossible, for then they would be "unintelligible". Kant proposes this definition as nothing less than a "postulate of empirical thought" in the first *Kritik* (B265 et passim)—when "it agrees with the formal conditions of experience". The formal conditions of experience constitute the transcendental ground for the possibility of experience. It follows, then, that whatever is at variance with the formal conditions of experience, must be ruled out, *a priori*, as being impossible. Call this *possibility* 2. It is this *transcendental possibility* which will concern us mostly in the following.

Parallel to the two meanings of the 'possible', there are two senses of the 'a priori', of which we shall speak later. Presently, it may be noted that the meanings of the typical Kantian questions can only be understood in the light of the above explication of the meanings of possibility/impossibility. "How is experience possible?" (i.e., "What can be given?" instead of merely "What is given"), or, "What is the condition of X?" (instead of merely "What is the character of X"?), etc. The understanding of the proper sense of these Kantian questions is requisite for the understanding of the proper sense of Kantian answers.

The answers, we discover, evoke *a priori forms*. And these *a priori* forms represent the framework of knowledge rather than its objects—or (as one says) second intentions rather than first intentions—but without themselves being objectless. Their
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objects consist, not of things and events in the "external world", but of concepts and principles in the "inner world" of mind. That Kant took the trouble, when revising his exposition of the "Axioms of Intuition" in the first Kritik, to replace the word 'Erscheinungen' (appearances) in A Edition (A162) by the word 'Anschauungen' (intuitions) in B Edition (B202), is significant. The intuition is the presentation of the object generally, not only as appearance through a "mode of representation" but also as concept in pure thought. Here, too, the line of demarcation between "empirical knowledge" and "transcendental knowledge" will be drawn.

"I call all knowledge transcendental", writes Kant therefore, "which treats, not so much of objects, but of the modes of our knowledge of objects, so far as this is to be possible a priori"—possible, that is, in the sense of possible. The objects and events of the "external world", then, are to be explained in terms of, and to be grounded in, the a priori forms which constitute the formal conditions of their possibility. X may be taken to be the epistemic ground of Y, when the formal modality of Y is determined by X; and the epistemic explanation of the objects of experience (which are given to us as appearances) would consist of exhibiting the transcendental matrix within which they are to be experienced.

To ground the explicanda of empirical knowledge in explicants of a priori forms, then, constitutes one of the two great motives of Kant's thinking. Erklärung and Begründung are two words that sum up this great motive. The other motive—to which the introduction to "Transcendental Dialectic" in the Kritik der reinen Vernunft as well as his correspondence attests—consists of the antinomies of pure reason. Nor are the two motives structurally unrelated. For the antinomies of reason have their origin in the misgrounding of the pure concepts of understanding in the empirical matrix of the external world—resulting in hypotheses whose explanations contradict each other—or (as Kant would express it) they have their origin in mistaking the world of "appearances" for the world of "things-in-themselves". One may presume, then, that when Kant first encountered Hume's treatise (probably around 1760) he had already experienced troubled sleep, and that the challenge which that encounter presented merely served as the needed catalyst for the thinker to take a new turn. Taking the "transcendental turn"—i.e., the transformation of epistemology from a state of unreconstructed presuppositionlessness into a state of reconstructed begroundedness by means of evoking the a priori forms—then was the inevitable consequence.

II. A RECONSTRUCTION OF KANT'S TRANSCENDENTAL ARGUMENT CONCERNING A PRIORI FORMS

"All special natural sciences ... need a pure part, in which the apodictic certainty, which reason seeks therein, can be grounded . . . " writes Kant at the opening of Metaphysische Anfangsgründe der Naturwissenschaft.

This proposition which refers to a priori forms obliquely needs to be explicated. To explicate it, in particular the expression 'pure part' (reinen Teil) contained therein, is to locate the a priori forms to which it refers. This is the task of the general transcendental argument. The argument, we shall see, is complex: it comprises a dou-
ble-phase, each of which involves regressive/progressive deductions, in the context of Kantian epistemology. I hope that my reconstruction of the argument will exhibit its inherent validity. The argument, thus reconstructed, absolves Kant from any real or imaginary association with subjective idealism.11

As the starting point of the first phase of the argument, I take the recurrent phrase 'the a priori conditions of the possibility of experience' (A95/B126 et passim); and, as the beginning of the second phase of the argument, I take the correlative phrase, 'the a priori conditions of the possibility of empirical knowledge' (referred to as the 'pure part' above and elsewhere). Note, too, that the expression, 'the condition of the possibility of', recurs in the two phrases. What, then, is the meaning of that expression? Since the "possibility" is here intended in the sense of possible2, the expression 'the condition of' is to be read, not in its purely logical sense but in its transcendental sense as well. A may be said to be the transcendental condition of B, when A determines the possibility of B (in the sense of possible, ) a priori; and thus A constitutes the necessary condition of B. However, if we also bear in mind the Kantian distinction between the "formal condition" and the "material condition"—since the a priori forms are only the formal but never the material condition of experience—then we see that A could not possibly be the sufficient condition of B. Besides, were one to take A to be the sufficient condition of B, then A would become merely a possible (in the sense of possible, ) condition of B, and not the only possible condition of B. And, on both grounds, the latter alternative is to be rejected.

I reconstruct, then, the general transcendental argument formally—on the basis of the distinctions made in this and the preceding section and on the basis of the several informal versions under the general heading of "Transcendental Deduction of the Pure Concepts of Understanding" in the Kritik der reinen Vernunft, in A Edition (A95-A130), in B Edition (B129-B169), and in both editions (A66/B91 to A94/B127) —as follows:

PHASE I

P1 Experience, as a manifold of ordered appearances, is possible.

P2 The order of experience could not be derived from appearances.

∴ P3 The order of experience must be grounded in a priori forms.

PHASE II

P4 The order of experience is grounded in a priori forms. (P3)

P5 Empirical knowledge reflects the order of experience.

∴ P6 Empirical knowledge presupposes a priori forms.
As a set of separate arguments, demonstrating the truth of the premises in the above argument, are to be found in the Kantian texts, I will not develop them here. I only note that the two phases of the reconstructed argument hang together: the conclusion of the one (P3) is assumed by the first premise (P4) of the other. The validity of both phases can be demonstrated analogously. From the negation of the conclusion (P3) of Phase I a contradiction between (~P3) and (P1 · P2) will be obtained; and, again, from the negation of the conclusion (P6) of Phase II a contradiction between (~P6) and (P4 · P5) will be obtained. The corrective, in each case, is the demonstrandum.

We may state, on the basis of the conclusions of the two phases of the transcendental argument, as reconstructed, the general conclusion: That the a priori forms of the understanding, as the modes of the representation of the external world, which make the orderly experience/knowledge of the world possible (in the sense of possible), have themselves an "objective reality". Two passages in the Kritik der reinen Vernunft, in particular, express the point about the 'objective reality' of the a priori forms (my translation):12 In A Edition Kant writes, "If there be pure concepts a priori, then they cannot ever contain anything empirical; yet, nonetheless, they must serve as a priori conditions of a possible experience, as their objective reality can rest thereupon alone"; and, in B Edition, he adds, "The possibility of experience, then, is what gives objective reality to all our a priori knowledge". Only the transcendental argument can justify Kant in asserting these propositions. Too, I distinguish the transcendental argument from the transcendental deduction, as the latter's task begins where the former's task ends. For the transcendental deduction proceeds, regressively, from empirical intuitions to their formal conditions, involving an ascent along the strata of concepts, representing degrees of priority and generality (Allgemeinheitsgraden), and resulting in the discovery of categories, postulates, analogies. But these need not be discussed here; for, what has already been discussed, in the foregoing pages, has prepared the context in which a rereading of synthetic propositions a priori is possible.

III. A REREADING OF SYNTHETIC PROPOSITIONS A PRIORI

Why does Kant take the question of synthetic propositions a priori—i.e., "How are synthetic judgments a priori possible?"—to be the central problem13 of critical philosophy?

We have examined two strains in Kantian epistemology: the idea of Erklärung and Begründung as its philosophical motive, and, the reconstructed transcendental argument which evokes a priori forms. Now these two strains can be woven together. The special function of synthetic propositions a priori consists of articulating the relation between the a priori forms and our knowledge of the external world. What, then, is the character of synthetic propositions a priori, propositions upon which the possibility of the rational knowledge of the external world depends, and how are they themselves possible?

Propositions—for Kant as well as for us moderns—are either analytic or synthetic; and synthetic propositions are either a priori or a posteriori. Which kind of
these propositions articulate the "categorial truths" of epistemology? Before we can answer this question, we must examine what "categorial truths" are.

Some truths, we say, are "deeper" than others. The possibility (in the sense of possibility) of other truths depends upon these. And, descending from the strata of "surface truths" to the strata of "deeper truths", along the rungs of "categorial necessity" (vs "logical necessity"), one finally arrives at "categorial truths". A truth belongs in this class when the evidence for it remains unaffected by the number of its instances. These are truths which lie at the lowermost level of epistemic explanation (Erklärung) and epistemic grounding (Begründung).

I maintain that Kant maintained the "categorial truths" can be expressed by synthetic propositions a priori alone; or (as Kant would express it) these propositions refer to the a priori modes of the representation of all possible experience. He also maintained that these propositions occupy a privileged status above all others. But I maintain (with Bergmann) that one may grant the epistemic hierarchy of propositions, on epistemological grounds alone, without evoking the "metaphysics" of transcendental idealism.

A passage in the Kritik der reinen Vernunft, concerning the possibility of synthetic propositions a priori reads (my translation):6

... synthetic judgments a priori are possible, when we relate the a priori formal conditions of intuition ... to a possible empirical knowledge generally and say: the conditions of the possibility of experience generally are likewise the conditions of the possibility of the objects of experience and hence have objective validity in a synthetic judgment a priori.

This passage, wherein the relation of the "possibility of experience" to the "possibility of the objects of experience" is noted, provides the clue to the possibility of synthetic propositions a priori: these propositions are possible, precisely because they relate conceptually the a priori (formal) conditions of intuition to the structure of experience.

And this last point is emphasized in another passage (my translation):7

Experience depends upon a priori principles of its form, namely, general rules of unity in the synthesis of appearances. Their objective reality, as necessary conditions of experience, indeed of its very possibility, can always be shown. Apart from this relation synthetic propositions a priori are completely impossible; for then they have no third thing, that is, no object, in which the synthetic unity can exhibit the objective reality of its concepts.

I take the term "depends" (in the opening sentence of the above passage) to mean a determination of "categorial necessity" in contrast to mere "logical necessity". Note, then, the three things involved (as alluded by Kant himself) here: first, the ap-
appearances (Erscheinungen); second, their a priori conditions (Bedingungen) of representation: and, third, the relation (Beziehung) between the one and the other (which is the "third thing" referred to by Kant). Let us, then, focus on this third thing, i.e., the epistemic function of synthetic propositions a priori.

To elucidate the character of synthetic propositions a priori, I begin (where Kant began) with the analytic/synthetic distinction—a distinction which (the recent controversy surrounding it notwithstanding) can and must be made in the context of Kantian epistemology. Moreover, an examination of the relevant passages in the Kantian texts show that Kant maintained two distinct, but interrelated, criteria for the analytic/synthetic distinction. Consider the following passages:

We read in the *Kritik der reinen Vernunft* (in my translation):

Analytic judgments . . . are therefore those in which the connection of the predicate with the subject is thought through identity; but those in which this connection is thought without identity must be called synthetic judgments.

And, again, in the *Prolegomena* (in Beck's translation):

But whatever be their origin or their logical forms, there is a distinction in judgments, as to their content, according to which they are either merely explicative, adding nothing to the content of knowledge, or expansive [ampliative], increasing the given knowledge. The former may be called *analytical*, the latter *synthetical*, judgments.

These two passages say different things about the same thing. In the first passage it is the logical form of the propositions that is stressed; in the second passage it is the conceptual content of propositions that is stressed. The two criteria, implicit in the two passages, may be rendered explicit as follows:

Criterion 1: whether the truth value of the proposition is determined by the laws of identity/contradiction alone.

Criterion 2: whether the truth expressed by the proposition is "explicative" or "ampliative".

Nor are the two criteria unrelated. Criterion 1 concerns the question whether concept A is, or is not, "contained" in concept B in a given proposition. But Criterion 2 concerns the question whether the synthesis of two concepts, A and B, in a given proposition, leads to the intuition of a third concept, C. Though, logically speaking, Criterion 1 is presupposed by Criterion 2, the latter asserts something other than the former. We may take the two criteria, integratively, to constitute Kant's definition of the analytic/synthetic distinction.

The character of "synthetic propositions a priori", at first sight, appears to be paradoxical. Synthetic propositions a priori are not analytic, ex hypothesi, and yet they
are a priori. But they could not be a priori, in the sense in which analytic propositions are a priori, i.e., logically necessary, for then they could not be synthetic in any sense. Thus, it would seem, the very expression 'synthetic proposition a priori' represents a hidden contradiction in terms.

However (as I have hinted previously and will explain now) there are two meanings of 'a priori': (a) 'a priori' as logically necessary (i.e., a proposition whose negation involves contradiction); and (b) 'a priori' as categorically necessary (i.e., a proposition whose truth is presupposed by the possibility of our knowledge of the object). Analytic propositions are a priori in the first sense; which is why they require the laws of identity/contradiction alone for their proof. Synthetic propositions a priori are a priori in the second sense; and hence they can never be proven by the laws of identity/contradiction alone. Both kinds of a priori propositions, however, are independent of experience; and that common point justifies the use of the designation 'a priori' in both cases. With this clarification the apparent paradox of the expression 'synthetic propositions a priori' vanishes.

Accordingly, I propose to reread the character of synthetic propositions a priori as follows:

Synthetic propositions a priori are categorically necessary propositions, concerning the formal conditions of empirical knowledge, presenting a priori knowledge of what is given a posteriori, such that their truth is demonstrable by special transcendental arguments.

Examples of synthetic propositions a priori—"Every phenomenon has a cause", "No event precedes itself in time", "No area has two shapes", etc.—clearly show that these propositions are not analytic, since their truth cannot be demonstrated by the laws of identity/contradiction alone. Nor are they a posteriori, since they are not derivable from, but remain presupposed by, experience. Rather, since they express 'categorical truths', their own truth is demonstrable only by special transcendental arguments.

The special transcendental argument proceeds along the descending strata, progressively, from formal concepts to empirical concepts. Formal concepts represent the rules of combination for empirical concepts, while the latter represent rules of combination for the objects of experience. The hierarchy of concepts implicit here remains encrusted in the matrix of transcendental categories. The principle of deduction here—as in the case of the general transcendental argument discussed earlier—remains that of categorial necessity (rather than of logical necessity). For here the critical relation is, not of contradiction and possibility, but of presupposition and possibility. The laws of logic—which Kant acknowledged as 'the negative condition of all judgments' (A150/B189)—are a necessary, but not a sufficient, requirement for the transcendental demonstration of the truth of synthetic propositions a priori.

That Kant named, of all the sciences, only two which may be said to contain synthetic propositions a priori, namely, mathematics and philosophy, is instructive. Both represent the "truths of reason"—a fact which also sheds light upon the historical
relations between these two disciplines. Yet these "zwei Arten" of *a priori* knowledge (as Kant calls them),

21 nevertheless, differ substantially from each other. Though both assume the axioms of logic as a necessary requirement, mathematics is concerned with the elucidation of *quantitative* concepts, while philosophy is concerned with the elucidation of *qualitative* concepts. But to say that these two disciplines contain synthetic propositions is not to say that they do not contain analytic propositions as well. 22 We know now that lower level mathematical propositions are analytic, while higher level mathematical propositions are synthetic, as the theory of metamathematics abundantly demonstrates. Both mathematics and philosophy appear to be more complex (to our modern view)—in the sense of involving more dimensions—than they appeared to the Kantian view. But I question whether, without the Kantian view, the modern view would have come into being.

I hope that this exposition has shed sufficient light upon the origins and character of synthetic propositions *a priori* to correct, as a by-product, some of its misreadings in recent philosophical literature. 23

**CONCLUDING REMARKS**

The theory of synthetic propositions *a priori*, understood in the light of the concepts of Erklärung and Begründung, contributes toward answering three interrelated, epistemological questions: Whether (and how) we can have *a priori* knowledge of what is given to us *a posteriori*? Whether (and how) the "truths of reason", i.e., knowledge derived from pure concepts (*reine Begriffe*), is possible? And, lastly, whether (and how) "philosophy" as a metascience (or, to use Kant's expression, "metaphysics") is possible? To answer these questions (as Kant attempted to do) is to illuminate some root-problems of philosophical inquiry.

One result of this line of inquiry has been to redefine the relation of philosophy to the special sciences. Philosophy, whose objects are the *a priori* forms of possible experience (and the presuppositions of empirical knowledge), can articulate synthetic propositions *a priori*. Natural sciences, in contrast, whose objects are the patterns and regularities of phenomena can articulate only synthetic propositions *a posteriori*. The line of demarcation between them is the line that separates the unconditioned from the conditioned. And the rational transition from the one to the other—or, to use Kantian expressions, from *das Unbedingte* to *das Bedingte*—was to constitute the theme of Kant's *Opus Postumum* (composed sometime during 1796-1803 toward the end of his career) which, however, remained incomplete 24 . . . and which would constitute a topic for another study.

This line of inquiry, too, marks Kant—regardless of the ultimate assessment of his metaphysical system and the problems associated with it—as the founder of the field of inquiry that we now call 'philosophy of science'. His dialectical dissolution of the antinomies of reason; his introduction of the logic of presuppositions toward the elucidation of epistemological strata; and his demonstration (by means of the transcendental argument) of the transcendental dependence of natural science (because it contains a "pure part") upon a philosophical framework; these have laid
the foundations for our modern foundation-studies. For, since Kant, philosophy has become a second-order discipline, in contrast to the special sciences, which are first-order disciplines. The recognition of their distinction had to precede the recognition of their complementarity. We may say that since Kant the word 'philosophy' (to use the words of that still unrecognized "neo-Kantian" philosopher, Ludwig Wittgenstein)25 "must mean something which stands above or below, but not beside, the natural sciences". This relocation of the tasks of philosophy also we moderns take for granted.

NOTE

The writing of this essay has been inspired by the works of, and/or correspondence with, these scholars especially: Karl Ameriks, Gustav Bergmann, James Collins, Moltke S. Gram, Klaus Hartmann, Josef Seifert, Guram Tewsadse, and Arnulf Zweig.

ENDNOTES


The quoted passages from Kant's works are my translation—except the *Prolegomena* where I have quoted L.W. Beck's translation.

The letters of Kant (*Briefwechsel, KGS*, X-XIII, 1922), though they are informative about the development of his philosophical ideas, remain relatively neglected in the English-speaking world. These letters have been selectively translated and edited by Arnulf Zweig in *Kant: Philosophical Correspondence (1759-99)* (Chicago: University of Chicago Press, 1967) who presents most of his philosophical correspondence in a lucid English version.

1 I assume the Stegmüller "principles of reconstruction" here:

(a) that the given theory must be presented in such a way that it remains in accordance with the basic ideas of the philosopher;

(b) that the theory be presented, as far as possible, as a coherent theory—unless it be in fact an inherently inconsistent theory;

(c) that the theory is to be given exposition and interpretation in precise terms.

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3  *De mundi sensibilis atque intelligibilis forma et principiis*, KGS, II, 413:

1. Eadem condicio sensitiva, sub qua sola intuitus obiecti est possibilis, est condicio ipsius possibilitatis obiecti.

2. Eadem condicio sensitiva, sub qua sola data sibi conferri possunt ad formandum conceptum obiecti intellectualem, est etiam condicio ipsius possibilitatis obiecti.

These lines were written in 1769-70, the years that (as Kant says) shed "light" on his philosophical path as he prepared to take the 'transcendental turn'; but that subsequently Kant had critical thoughts about several points in this inaugural dissertation is indicated in his long letter to Marcus Herz, dated 21 February 1772 (Briefwechsel I, KGS, X, 129-35).

4  In a letter, dated 21 February 1772, Kant wrote to Marcus Herz (*Kant: Philosophical Correspondence*, 71): "I asked myself: What is the ground of the relation of that in us which we call 'representation' to the object?" Since Marcus Herz served as the official "Respondent" during the public defense of Kant's inaugural dissertation (1770) the latter's correspondence with the former is especially significant. It was in another letter to Herz (dated 1773), after the reception of the dissertation, that Kant sketched his prospects for research in philosophy, making use of the expression "critique of pure reason" for the first time.

5  Letter to Marcus Herz, dated 24 November 1776, in *Kant: Philosophical Correspondence*, 86.

6  *Kritik der reinen Vernunft*, KGS, III, A95-A96.

7  *Kritik der reinen Vernunft*, KGS, III, B25 (my translation).

It was in response to this epistemological thesis of Kant (first articulated in the inaugural dissertation of 1770)—implying the *ideality* of space and time—that J.H. Lambert of the Berlin Academy of Sciences wrote to Kant (Letter dated 13 October 1770, *Kant: Philosophical Correspondence*, 63-4): "All changes (Veränderungen) are bound to time and are inconceivable without time. If changes are real, then time is real, whatever it may be. If time is unreal, then no change can be real . . . Since I cannot deny reality to changes—I also cannot say that time (and this is true of space as well) is only a helpful device for human representations". Then Lambert proposed an analogical formula: "Time : Duration = Location : Space". And he implied thereby that, while the concepts of *time* and *space* may belong to the realm of thought, the *phenomena* of *duration* and *location* still belong in the actual world. Kant's formal reply to this counter-argument is stated (without naming Lambert however) as an "Erläuterung" in the *Kritik der reinen Vernunft*, at A36-A41 (and repeated by B53-B58), from which I quote these lines (my translation): "time is indeed something real, namely the real form of inner intuition. It has thus subjective reality in respect to in-
ner experience . . . It is therefore real, not as object, but as the mode of representation . . . "

8 In a revealing letter dated 21 September 1798, (Kant: Philosophical Correspondence, 252) the aged Kant wrote to Christian Garve: "... the antinomy of pure reason . . . that is what first aroused me from my dogmatic slumber and drove me to the critique of reason itself, in order to resolve the scandal of ostensible contradiction of reason with itself". This literary confession seemingly contradicts Kant's earlier recollection (in the foreword to the Prolegomena written in 1783), that it was Hume who had awakened him from his "dogmatic slumber", and had inspired a "new direction" in his philosophical inquiry. But though Kant read Hume around 1760, it was not until 1770 that his philosophic thinking took a "new direction" in a true sense; for the roots of Kant's concern with the "antinomy of reason" certainly transcended Hume's problem even if it did not predate it.

9 I use the designation 'transcendental turn', in a strict sense, to refer to the Kantian way of inquiring into philosophical presuppositions (and, possibly, to its recent analogue in the philosophy of science), in contrast to a more inclusive usage such as that of Klaus Hartmann ("On Taking the Transcendental Turn", Review of Metaphysics, 1966, v. 20, no. 2) who includes the approaches of Hegel, Heidegger, and others.

10 Metaphysische Anfangsgründe der Naturwissenschaft, KGS, IV, 469 (my translation).

11 See Kant's own comparison of his "critical idealism" with the "subjective/dogmatic idealism" of Bishop Berkeley, in the "Appendix" of the Prolegomena (edited and translated by L.W. Beck, 1951), especially 123-25. Kant writes (in Beck's translation): "I, on the contrary, prove . . . space and time (in conjunction with the pure concepts of the understanding) prescribe their law to all possible experience a priori and, at the same time, afford the certain criterion for distinguishing truth from illusion therein". And, on this point, Professor G. Tewsadse's conclusion, in his commentary on Immanuel Kant, (Tbilissi/USSR, 1974) 504-19, corroborates mine.

12 Kritik der reinen Vernunft, KGS III/IV, A95 and B195.

13 Kant insists, repeatedly, on what he takes to be the "general problem" of epistemology, i.e., "Wie sind synthetische Urtheile a priori möglich?" He poses this question in the "Vorerinnerung" of the Prolegomena, KGS, IV, XX 5; in the "Einleitung" of the Kritik der reinen Vernunft, KGS, III, B19; and in Über eine Entdeckung . . . , KGS, VIII, 188, to mention three instances.

14 In making the epistemological distinction between "surface truths" and "deeper truths", I am following the usage of Gustav Bergmann in "Synthetic A Priori", in Logic and Reality, (Madison: University of Wisconsin Press, 1964) with its implied consequence that the synthetic a priori might be a relative concept, corresponding to the levels of presupposition, rather than an absolute one.
A clear line of demarcation must be drawn between the doctrine of "transcendental deduction" and the doctrine of "transcendental idealism", without prejudging their interrelationships. Support for this view may be found in the illuminative commentary of Karl Ameriks, *Kant's Theory of Mind: An Analysis of the Paralogisms of Pure Reason* (Oxford, 1982).

Kritik der reinen Vernunft, KGS, III, B197.

Ibid., A156/B196.

Ibid., A7/B10.


This hypothesis of "double criteria" is less cumbersome than the hypothesis of "explicit/implicit definitions", proposed by M.S. Gram in his illuminating commentary *Kant, Ontology, and the A Priori*, (Evanston: Northwestern University Press, 1968), ch. 3., as I maintain that Kant employed two distinct (and complementary) criteria toward the formulation of a single definition. Perhaps, carried to their logical conclusions, the hypotheses of Professor Gram and mine approach a point of convergence. On the difficulties associated with any exposition of the Kantian doctrines, see M.S. Gram (ed.) *Interpreting Kant*, (Iowa City: University of Iowa Press, 1982).

See *Logik*, KGS IX, 22-23 et passim; *Metaphysische Anfangsgründe der Naturwissenschaft*, KGS, IV, 469-70; and Kritik der reinen Vernunft, KGS, III/IV, A713/B741 to A727/B7dd.

In view of what we know now about the complex character of mathematics, it is surprising that Kant maintained (in the *Kritik der reinen Vernunft*: A10/B14) that "all mathematical judgments, without exception, are synthetic". His motives in giving us the bad example of "(5+7) = 12" (the example which invited refutation from Russell, Quine, and others), when he might have given a good example of synthetic propositions in mathematics, such as the Gauss Theorem \(M = n(n+1)/2\), which cannot be proven by the laws of identity/contradiction alone, as it requires the assumption of the axiom of continuity; etc., remain an enigma to Kantian scholars.

Two examples of the misreadings of Kant's doctrine of the synthetic *a priori* are: first, Wilfrid Sellars' misformulation (in Kantian perspective) of the very problem: "Are there any universal propositions which, though they are not logically true, are true by virtue of the meaning of their terms"? in "Is There a Synthetic Priori"?, *Science, Perception, and Reality*, (London, 1971), 300. Kant's problem is not the meaning of pure concepts *per se*, but the possible range of empirical intuitions that must fall under them. Second, A.J. Ayer's misreading of psycho-linguistic intentions into the Kantian formulation in *Language, Truth, and Logic*, (London, 1950, 3rd edition), 78ff. This misreading was corrected eventually by D.E. Anderson, *Southern Journal of Philosophy*, 1979, v. 17, no. 2.
24 See the *Opus Postumun: I/II, KGS*, Bde, 21-22, where the "problem of transition" (Übergangsproblem) is pursued. Traces of this theme also occur in the *Vorarbeiten und Nachträge, KGS*, Bd. 23. Whether, and how, Kant makes the transition, from philosophy to natural science, would be a task for another study.

25 The image of Wittgenstein as a "neo-Kantian philosopher" was first sketched by Erik Stenius in *Wittgenstein's Tractatus: A Critical Exposition of its Main Lines of Thought*, (Oxford, 1960), 214-26. Of course, this comparison applies to Wittgenstein I (the author of the *Tractatus*) strictly, and not to Wittgenstein II (*Philosophical Investigations*) who emerges definitely as an "un-Kantian philosopher".