

**THE QUIDDITY OF KNOWLEDGE IN KANT'S CRITICAL
PHILOSOPHY**

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ABSTRACT

THE QUIDDITY OF KNOWLEDGE IN KANT'S CRITICAL PHILOSOPHY

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In this thesis the quiddity of knowledge in Kant's critical philosophy has been investigated within the historical context of the problem. In order to illustrate the origins of the subject-matter of the dissertation, the historical background of Kant's views on the theory of knowledge has been researched too. As a result of this research, it is concluded that Kant did not invent a new philosophical problem, but he tried to improve a decisive solution for one of the oldest question of history of philosophy i.e., "How is synthetic a priori knowledge is possible?" The theoretical dimension of Kant's theory of knowledge is reserved for this purpose. The above mentioned question is not new neither for us nor for Kant, but his answer and his philosophical stand have clearly revolutionary meaning both for us and for him. This thesis claims that his stand-point not only leads to an original epoch for the theory of knowledge, but creates a serious possibility for a new ontology explicating the quiddity of knowledge.

Keywords: Kant, Knowledge, Quiddity, Synthetic A priori, Transcendental.

ÖZ

KANT'IN ELEŞTİREL FELSEFESİNDE BİLGİNİN NELİĞİ

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Bu tezde Kant'ın eleştirel felsefesinde bilginin neliği, problemin tarihsel bağlamında incelenmiştir. Tezin konusunun köklerini sergilemek için, Kant'ın bilgi kuramı üzerine olan görüşlerinin tarihsel arka planı da araştırılmıştır. Bu araştırmanın sonucunda Kant'ın yeni bir felsefe problemi icat etmediği, ama felsefe tarihinin en eski problemlerinden birine yani “Sentetik a priori bilgi nasıl olanaklıdır?” sorusuna kalıcı bir yanıt geliştirmeye uğraştığı sonucuna varılmıştır. Kant'ın bilgi kuramının kuramsal boyutu bu amaca ayrılmıştır. Yukarıda anılan soru ne bizim için ne de Kant için yeni bir sorun değildir, ancak onun verdiği yanıt felsefi duruşu hem bizim için hem de onun için açıkça devrimci bir anlam taşır. Bu tez, onun duruş noktasının yalnızca bilgi kuramı için yeni bir çığıra yolaçmadığını, aynı zamanda bilginin neliğini açıklayan yeni bir ontoloji için ciddi bir olasılık yarattığını önerir.

Anahtar Kelimeler: Kant, Bilgi, Nelik, Sentetik A priori, Aşkınsal.

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LIST OF ABBREVIATIONS

A: *Critique of Pure Reason* A Edition.

B: *Critique of Pure Reason* B Edition.

MFNS: *Metaphysical Foundations of Natural Science*.

Dialogues: *Three Dialogues Between Hylas and Philonous*.

Principles: *Principles of Human Knowledge*.

EHU: *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*.

T: *A Treatise of Human Nature*.

DNR: *Dialogues Concerning Natural Religion*.

Principia: *Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His System of the World*

Essay: *An Essay Concerning Human Understanding*.

CHAPTER 1

INTRODUCTION

1.1 The Structure of the Study

In this thesis the quiddity of knowledge in Kant's philosophical corpus will be examined. While I am elaborating on the historical origins of Kant's critical philosophy, I will be making more explicit the major problems that Kant dealt in his works. The second chapter of this study is reserved for this purpose. The limits, scope and status of these historical ideas of Kant's predecessors have played a vital role in forming the original place of Kant in the history of philosophy.

The quiddity of knowledge in Kant's critical philosophy has been investigated within the context of the history of ideas which has the capacity of showing the dynamics how philosophy changed decisively after Kant. For this reason, Kant's refutation of the idealism of Berkeley is analyzed.¹ Following both the *Prolegomena* and the *Critique*, I will be able to clarify how Kant understands Hume and "answers" him.²

In the case of Kant's understanding of Newton, I will try to show that "Kant's critical analysis of Newton's *Principia* is an application of transcendental philosophy, an application that is also supposed to serve as a realization of that philosophy which illustrates its fundamental concepts and principles *in concreto*" [Friedman 1992b, p. 139]. From this point of view, it would not be an exaggeration to describe the Newton's physics as a scientific framework of Kant's critical philosophy. Kant's syntheses and solutions that he developed mainly in his

1 See for a full discussion of this well-known refutation, Wilson (1971), Turbayne (1955), Skorpen (1968) and Allison (1973).

2 During my readings of some secondary literature, for instance Bayne (2000), Wolff (1960), Buchdahl (1965), Langsam (1994), I have found out that Kant is more Humean than Berkeleyan in style. Especially, Hume's account of causality has played a more positive role than, for instance, Berkeley's theory of matter throughout Kant's philosophical corpus.

first *Critique*, guided me in order to find out the theoretical components of his understanding of epistemology which forms the body of the third chapter of the dissertation.

1.2. The Aims of the Study

Kant's main problem was the nature, limits, and validity of a priori knowledge. He thought that he could point to two sciences which profess to be a priori and to prove propositions which are not merely analytic. These were mathematics and metaphysics. Intermediate among them came physics, which Kant believed to involve certain synthetic a priori principles, such as the permanence of substance and the law of causation. If we consider the attitude of Kant's predecessors about these alleged sciences we see that they were as follow. (1) Leibniz believed both mathematics and metaphysics to be a priori, but he also believed that all a priori propositions are analytic. Kant was convinced, on the other hand, that the propositions of arithmetic, like " $7+5=12$ ", and of geometry, like "Two straight lines cannot enclose a space", are synthetic. (2) Hume seems to have regarded arithmetical propositions as a priori but analytic, and geometrical propositions as synthetic but empirical. And, of course, Hume regarded our beliefs in the law of causation and the permanence of substance as non-rational products of custom and association, and took an entirely skeptical view about metaphysics. We shall see that Kant very largely agreed with Hume about metaphysics. But about propositions like the law of causation and the permanence of substance he concluded which is quite original. He held that these propositions require and are capable of proof and that they are in a certain sense a priori. But the proof is of a very peculiar kind, namely what Kant calls a 'transcendental argument'. And the a priority is also of a peculiar kind, which is specially connected with this notion of a transcendental proof.

Now Kant noticed that of the two alleged a priori sciences of mathematics and metaphysics the former had made steady progress while the latter had hardly

progressed at all. And he asked himself: "What is the cause of this difference, and could metaphysics ever be made into a genuine science like mathematics?" He says that it was Hume's attack on the law of causation which "aroused him from his dogmatic slumbers", and that he soon came to see that Hume had touched only one particular case of a fundamental general problem. Kant puts the general problem in the form "How is synthetic a priori knowledge possible?"

His answer is that there is such knowledge, but its range is severely limited. Synthetic a priori knowledge is possible only so far as it is about objects of possible sense-perception. The moment you try to apply these a priori propositions to objects like God and the soul, which could not possibly be perceived by the senses, they lose all intelligible meaning. And they show this by leading to contradictions, which he calls "paralogisms" and "antinomies". Here we have two propositions which are or seem to be contradictory, and just as good reasons for accepting one as for accepting the other. He calls the application of a priori principles to objects of possible sense-perception "immanent", and their attempted application beyond this range he calls "transcendent". ('Transcendent' must not be confused with 'transcendental'. The former is a term of reproach in Kant's usage; the latter refers to a particular mode of argument, which we shall consider later. But Kant does often use one where he obviously means the other. In general he is very fond of drawing clear distinctions and ever afterwards neglecting them.) His work, then, falls into two main parts:

1. To justify the use within experience of certain universal propositions which are not derived by induction from experience.
2. To show that these same propositions, though not derived from experience, have no legitimate application beyond the range of possible sense-perception.

These two parts are connected in the following way. In justifying the immanent use of these propositions we have to consider their nature very carefully. Now they

turn out to be principles of organization or connection which convert a chaotic mass of sensations into the perception of what is ostensibly a world of permanent extended law-abiding objects. And it follows that they have no application outside the range of possible sense-perception, because beyond that range there are no sensations for them to connect and organize.

I shall now try to explain three closely connected notions which are very important in Kant's philosophy; viz. (1) his notion of the a priori, (2) the Copernican revolution in philosophy, and (3) transcendental arguments.

1.2.1 Kant's Notion of the a priori

Kant meant several different things by the adjective a priori, and never stated very clearly what they were. We must begin by noting one fundamental distinction, viz. that between a priori judgments or propositions and a priori concepts. Kant would say that the principle that every event is caused is an a priori proposition and that cause is an a priori concept. Let us begin with the term a priori as applied to propositions or judgments.

In discussing this question I think it is convenient to distinguish two pairs of opposites, viz. necessary and contingent and a priori and empirical. These are closely connected with each other, but they are different. The terms "necessary" and "contingent" are logical or ontological. They apply to propositions or to facts. It is a necessary proposition or fact that $2 \times 2 = 4$ or that the square root of 2 is irrational. It is a contingent proposition or fact that all animals which have cloven hoofs chew the cud. The terms "a priori" and "empirical" are epistemological. They apply to knowledge of facts or to belief in propositions. Let us use the word "judgment" to cover knowing facts and believing propositions. Now the ordinary use of a priori as applied to judgments is this. One's knowledge of p is a priori if and only if one can see that p is necessary. One may come to recognize that p is necessary either directly through inspecting its terms and reflecting on them or

indirectly by showing that p follows, in accordance with the principles of formal logic, from other propositions each of which one can see by direct inspection to be necessary. We may distinguish the two cases by saying that a priori knowledge may be either intuitive or demonstrative. It follows from these definitions that any fact or proposition which is or could be known a priori is necessary. Conversely, any fact or proposition which is necessary, and only such facts or propositions, might conceivably be known a priori. But there may be many necessary facts or propositions which are not known a priori by a particular person at a particular time. And there may be many necessary facts or propositions which never have been and never will be known a priori by any human being. There are many propositions, e.g. about the properties of numbers, with regard to which we can know that they are either necessarily true or necessarily false. But with regard to many of these no human being has so far been able to see either by direct inspection or by demonstration that they are necessarily true or to see that they are necessarily false. Here a priori knowledge is theoretically possible but does not actually exist. If a person in fact believes one of these propositions with more or less confidence, his belief is empirical. Again, suppose that I accept on authority a mathematical proposition which has been proved by an expert. Then the expert's knowledge of that necessary proposition is a priori, but my belief in that same proposition is empirical. If a fact or a proposition is contingent, then knowledge of that fact or belief in that proposition must be empirical and cannot be a priori. There is genuine knowledge of singular contingent facts. For instance, I know that I am now having certain experiences, like certain visual and auditory sensations. But it is doubtful whether there is genuine knowledge, as distinct from rationally justifiable if strong belief, in any universal contingent proposition, e.g. that all cloven-footed animals chew the cud.

I think that the above is a fair account of the ordinary use of "a priori" and "empirical" as applied to knowledge and belief. This is certainly what Kant's predecessors, such as Leibniz and Locke and Hume, meant by it, and it is what

Kant begins by meaning. But I think it is quite certain that he introduced another sense of “a priori” as applied to judgments. In order to see what this is we must first consider the distinction between analytic and synthetic judgments, which plays an important part in Kant's philosophy. We may confine our attention here to universal judgments, such as “All Negroes are black” and “All crows are black”. Kant would say that the judgment “All S is P” is analytic if and only if the concept of the class S contains explicitly or implicitly the concept of the characteristic P, so that by merely analyzing the concept of S one could see that it would be self-contradictory to suppose that there might be an instance of S which did not have the characteristic P. Thus, it would be self-contradictory to suppose that there might be a Negro who was not black, and we can see this by reflecting on the meaning of the word “Negro”; but it would not be self-contradictory to suppose that there might be a crow which was not black. Kant regarded the principles of formal logic, e.g. the principle of the syllogism, as analytic. The judgment “All S is P” is synthetic if it is not analytic, i.e. if the concept of S does not contain explicitly or implicitly the notion of P, so that it is not self-contradictory to suppose that there might be an instance of S which did not have the property P.

I think that there are considerable difficulties and obscurities in the notion of an analytic judgment. In the first place, to talk of the concept of S begs questions. Is there anything that can be called the concept of a Negro or a crow or an ellipse? May not different men have different concepts of the same term at the same time, and may not the same man have different concepts of the same term at different times? And may not some of these concepts of S contain the notion of P, and others of them not contain the notion of P? Again, the phrase 'contain the notion of P' is plainly metaphorical, and the literal meaning of the metaphor is highly obscure. Does the concept of the circle “contain” every property which could be shown to belong to all circles and only to circles? If so, what does 'contain' mean? If not, on what principle do you subdivide these properties into those which are contained in the concept of the circle and those which are not?

If we consent to waive these difficulties, it is evident that any judgment which was analytic would be a priori in the traditional sense. The proposition judged would be seen to be necessary, because the opposite of it would be seen to be self-contradictory and therefore impossible. But it does not follow from our definitions that every judgment which was a priori in the traditional sense would be analytic. For it is at least conceivable that I might be able to see that 'All S is P' is necessary, either by direct inspection or by deductive inference, without its being the case that the opposite of it would be self-contradictory. Many people, e.g., claim to be able to see on inspection that every event must be causally determined. Yet most people would admit that the notion of being causally determined is not part of the concept of an event, and that there is nothing self-contradictory in the supposition that there might be an event which was not causally determined.

Thus we cannot rule out by definition the possibility that there might be judgments which are both synthetic and a priori in the traditional sense. There are plenty of judgments, e.g. those of ordinary geometry, which seem at first view, to combine both these properties. And many of Kant's predecessors, e.g. Locke, held that there are in fact plenty of judgments which are both a priori in the traditional sense and synthetic. Others, e.g. Leibniz, held that this is a mistake, and that all judgments which are a priori in the traditional sense must be analytic.

Now Kant begins by talking as if he accepted the view that there are judgments which are synthetic and yet are a priori in the traditional sense. He talks of the propositions of arithmetic and geometry, and of the principle of universal causation, as synthetic a priori judgments. And he professes to be concerned with the question "Granted, as we must do, that there is synthetic a priori knowledge, how is it possible?" But, when we look at his attempts to answer this question, we find that he does not really admit these judgments to be a priori in the traditional sense. He holds them to be a priori in a new sense, which he never explicitly defines, but which can be understood by reflecting on his arguments.

This point comes out quite plainly in Kant's dealings with the law of universal causation and the principle of the permanence of substance. He describes these as synthetic principles which are or can be known a priori. Now he certainly did not admit that they are self-evident, i.e. that we can see their necessity by reflecting on their terms. For he devotes an immense amount of trouble to proving them. And when we look at the proofs we find that they do not start from premises which are self-evident. The ultimate premises of these arguments are found to be certain very general but quite contingent facts about the nature of human experience. E.g. one premise is that our knowledge of physical objects and events is based on sensations which arise in us successively. Another premise is that we can and do distinguish between the temporal order in which we get our sensations and an objective temporal order of the things or events which we perceive by means of our sensations. A third important premise is that each of us recognizes his own persistence and self-identity throughout his changing experiences, although he is not acquainted introspectively with a persistent unchanging ego. Now all these premises, though very general and pervasive, are quite contingent. It is therefore clear that, when Kant describes our knowledge of the law of causation or of the permanence of material substance as "a priori", he cannot be using "a priori" in the traditional sense. For, in that sense, any proposition which could be known a priori would be necessary. But these propositions, according to Kant, are inferable only from premises which are contingent; and the consequences of contingent premises are themselves contingent.

I will distinguish the traditional sense of a priori by the name "absolutely a priori" and Kant's peculiar sense of it by the name "transcendentally a priori". We must now try to state what Kant meant by "transcendentally a priori".

If we look at the judgments which Kant regards as transcendentally a priori, we notice that they are all hypothetical and that there is a common feature in the antecedents of all of them. Kant does not claim to have proved that every event has a cause or that no substance can begin or cease to exist. He distinctly says that it is

impossible for us to know whether this is so or not. What he claims to prove about causation is that any event which could possibly be an object of human sense-perception must be caused by some such earlier event. What he claims to prove about substance is that all perceptible change is change in the states of perceptible substances and not the coming into existence or the cessation of such substances. This characteristic of being "perceptible by a human mind" which qualifies the subjects of all Kant's transcendently a priori propositions needs a little further explanation. "Perceptible" must be taken in a very wide sense. A thing or event would not cease to be "perceptible by a human mind", in Kant's sense, merely because no human being happens to have acute enough sense-organs or to have been in the right place at the right time to perceive it. An event happening in the sun before there were any human beings would count as "perceptible" for Kant's purpose. Kant only requires that the event shall be such that it would have been perceived by any mind which worked on the same general principles as ours, provided that it was in the right place at the right time and had suitable sense-organs. (I think that Kant would have difficulty, in view of his own doctrine about the subjectivity of space and time, in putting a satisfactory interpretation on the phrase 'in the right place at the right time'. But that is a difficulty which he shares with many other philosophers, e.g. with phenomenologists.)

If we look at Kant's proofs of the judgments which he counts as synthetic and a priori, we find that they all start with certain very general premises, positive and negative, about the way in which human minds work. He then claims to deduce from these premises that any object of possible human sense-perception must have such-and-such a property. We can now define a "transcendently a priori judgment". It is a judgment which asserts, with regard to all objects of possible human sense-perception, that they must have certain characteristics, because the latter are entailed by certain very general facts about the way in which human minds work. Kant's transcendently a priori judgments are not judgments of intrinsically necessary propositions. If Kant is right, they are judgments of

propositions which are necessary consequences of certain facts about the human mind; but these facts are contingent and so are their consequences.

If my interpretation is correct, Kant answered his original question only by altering its meaning. The original question was: "How are synthetic a priori judgments possible?" This meant originally: "How can we come to see that a proposition of the form "All S is P" is necessarily true, in cases where the notion of P is not contained either explicitly or implicitly in the concept of S, and therefore the supposition that there might be an instance of S which is not P is not self-contradictory?" To this question Kant's answer is that, in this sense of a priori, synthetic a priori judgments are not possible. So far as I can see, Kant is in complete agreement with Leibniz and with Hume, and in disagreement with Locke, on this point. According to him, the only judgments which are or can be a priori in the absolute sense are analytic. What he then proceeds to do is to introduce a new sense of a priori, viz. the transcendental sense, and to try to show that many important judgments, which are synthetic, and were thought to be a priori in the absolute sense, are a priori in the transcendental sense. Now, this has at least the merit of originality. Before Kant's time there were three alternative views about such judgments as "Every event has a cause". (1) The orthodox rationalist view that they are knowings of facts which are intrinsically necessary and can be seen to be so by reflecting upon the terms involved in them. Kant agreed that Hume had upset this view. (2) The orthodox empiricist view, which we find in Mill, that they are proved or rendered probable by induction. This Kant also rejected on the grounds that induction could not account for the fact that we make these judgments with complete confidence about every member of an unlimited class of possible subjects. Moreover some of them seem to be presupposed in all inductive arguments. (3) The skeptical view of Hume that such judgments have no rational ground at all, but are simply irrational expectations caused by constant experience of regularity. Hume took this view because he rejected the first and second theories and could think of no other alternative. Now Kant held that our geometrical and arithmetical judgments raise

precisely the same kind of problem as our belief in the law of universal causation. And he thought that, if Hume had realized this, he would have hesitated to adopt his skeptical view.

However that may be, Kant's great originality was to think of a fourth alternative. Stated very roughly, it may be put as follows. Each of us, when awake and sane, ostensibly perceives a world consisting of many independent extended movable things, of various recognizable kinds, occupying positions in a single spatial system and interacting with each other. He ostensibly perceives each of these things as persisting, as having a history consisting of various successive states, and as simultaneously possessing many different properties. He is able to identify a particular thing on various occasions, in spite of profound changes in its appearances, its states, and its relationships. He ostensibly perceives himself as the persistent owner of a whole set of very various experiences, simultaneous and successive. And he regards his own experiences and the events in all other things as dated in a single temporal system. This is one of Kant's premises, and it must be accepted as substantially true.

Kant's other premise is that the only empirical data on which all this is based are sensations, images, feelings and emotions of various kinds, which are passively received and are fleeting and come and go in a most chaotic way. Now it seemed to Kant that the only way in which one could explain how the characteristic experience of a sane waking man can arise from such empirical data is this. One must suppose that each of us unconsciously combines, separates, modifies, and supplements the crude passively received data in accordance with certain very general innate principles. Propositions like the law of universal causation are explicit formulations of the innate principles in accordance with which we unconsciously operate on the crude data in generating normal waking sense-perception and self-consciousness.

Such a view carries certain consequences with it. (1) Principles like the law of

universal causation must be stated in a more restricted form. They must not be applied to events as such and without restriction, but only to events which are capable of being objects of human sense-perception. (2) It follows at once that both the orthodox rationalist view and the orthodox empiricist view of our knowledge of such principles must be rejected. But Hume's skeptical view would also be undermined. For, according to Kant, the regular experience, which Hume postulates in order to explain the formation of our habitual expectations, could not have existed unless these principles, in their restricted form, had been true. For no coherent perceptual experience at all, e.g. no experience in which persistent things are distinguished and identified on various occasions, would have been possible unless these principles had been true.

1.2.2 A priori as Applied to Concepts and Percepts

We will now consider what Kant means by 'a priori' as applied to concepts and to percepts. I will begin with concepts, and I will first treat the matter in my own way and then try to relate Kant's view to what I have said.

We derive our concepts of certain characteristics by abstraction from particulars met with in sense-perception or introspection, which present themselves to us as having those characteristics. Thus we derive the concept of 'red' by abstraction from things which we have seen and which looked red and of the concept of 'painfulness' by abstraction from experiences which we have had which were painful. Then, again, we have the power of conceiving complex characteristics which have never been presented to us in sense-perception or introspection, provided that instances of their component characteristics have been presented to us. We can form the concept of a mermaid, although we have never seen one, because we have seen women and fish, and can then combine the notion of having a woman's body with that of having a fish's tail. Now I would define an 'empirical concept' as one which has been formed in one or other of these two ways. And I would define an a priori concept as one which is not empirical in this sense. This is

of course a definition in purely negative terms.

Now it seems plausible to hold that we have some concepts which are a priori, in the sense that they are not derived in either of these two ways. The most plausible instances would be the concepts of cause and of substance. Again, if ethical words like 'morally right', 'ought', etc. stand for characteristics, then it seems plausible to hold that our concepts of these characteristics are a priori, in the sense of being non-empirical. Kant did in fact describe the concepts of cause and of substance and of moral obligation as a priori. So at any rate the phrase "a priori concept", as I have defined it and as Kant used it, has much the same range of application.

Now, even if such concepts as cause and substance are not abstracted from instances presented to us by sense-perception or by introspection, no doubt special kinds of experiences are necessary before we can explicitly formulate them. Probably we should never have explicitly formulated the notions of cause or of substance unless certain kinds of sensation had occurred frequently in conjunction or immediate sequence. What is asserted by those who call these concepts 'a priori' is that such features in our experience are only the occasions and the necessary conditions for us to formulate explicitly the concept of cause and of substance. These peculiar experiences do not present us with instances of causation or substantiality, from which these concepts could literally be abstracted, as the experience of seeing a pillar-box presents us with an instance of redness from which the concept of redness could be abstracted. At most they present us with instances of conjunction or of sequence. You cannot literally see with your eyes a moving stone causing a window to break. All that you can literally see is the stone coming in contact with the window and immediately afterwards the continuous pane of glass being replaced by falling fragments. I think that all this would be admitted and asserted by Kant about the concepts which he describes as 'a priori'.

Now persons who hold that there are concepts which are a priori, in the negative sense of non-empirical, are naturally inclined to supplement this with some

positive view as to the nature of such concepts. Two types of positive view have been held, which might be called objectivist and subjectivist. According to the objectivist view, the causal relation and the relation of an event to a substance in which it occurs, e.g., are objective features of the world, quite independent of the processes in human or other minds. We just become aware of these independent features, on the occasion of certain appropriate kinds of sense-experience, by a peculiar kind of rational insight. So far as I can understand, Hegel held a form of the objectivist view. According to the subjectivist view, the notions of cause and substance, e.g., are innate ideas peculiar to human minds; and we, so to speak, 'project' these ideas into the world on the occasion of certain appropriate kinds of sense-experience. Now there is no doubt that Kant held a form of the subjectivist view as to the nature of a priori concepts. The form in which he held it is peculiar to himself, and difficult to state briefly and fairly at this stage. But it may be put very roughly as follows. In passing from merely having sensations to the experience of ostensibly perceiving a world of independent persistent identifiable extended interacting things we must have unconsciously performed various elaborate processes of synthesis upon the crude data of sense. These various processes must in fact take place in accordance with certain very general rules or principles which are the same for all men at all times. For the perceptual experiences of all men are on the same general plan and fit more or less satisfactorily together. Now, when we come to reflect upon our ordinary waking perceptual experience, we make judgments which involve such notions as 'cause and effect', 'substance and states', and so on. According to Kant these notions, which become explicit in such judgments, correspond to the various fundamental types of synthesis which have been taking place unconsciously and have generated the perceptual experience to whose objects these judgments refer. So Kant's view seems very roughly to be as follows. Each different a priori concept is correlated with and corresponds to a different fundamental type of innate unconscious synthetic process, whereby the human mind generates out of crude sensations the experience of ostensibly perceiving a world of independent persistent extended identifiable interacting

things.

Kant, unlike almost all other philosophers, held that there are a priori percepts as well as a priori concepts. He asserts that space and time are a priori and that they are perceptual and not conceptual. We shall have to discuss this view, and Kant's reasons for it, in detail later. At present all that can usefully be said is this. Kant took it to be a fact that our geometrical and arithmetical knowledge is synthetic and non-empirical, and at the same time categorical and not merely conditional. He thought that the only way to account for this was to suppose that the human mind imposes, in accordance with innate principles, spatial and temporal characteristics upon data which are in themselves neither spatial nor temporal. He thought that all the other kinds of synthesis involve and are involved by this imposition of spatial and temporal characteristics. It is therefore easy to see why he calls space and time 'a priori' in the same sense in which he calls the concepts of cause and substance 'a priori'.

The sort of reasons which he had for calling space and time percepts, and not concepts, may be stated very roughly as follows. We do literally see things as extended and shaped and as forming a single extended pattern in which the various things occupy various positions. We do not literally see one event causing another. Then, again, we conceive of the totality of actual and possible extended things as forming a single spatial whole, which might conceivably be perceived as such in one glance, though no human being is ever in fact in a position to do this. Rather similar remarks apply to time. In a single specious present one is directly acquainted with certain events as simultaneous, and with others as successive. And we conceive of the totality of actual and possible events as forming a single temporal whole, which might conceivably be the contents of a single indefinitely long specious present. These are genuine and important differences between space and time, on the one hand, and what Kant calls 'categories' of a priori concepts, e.g. the notion of cause or of substance, on the other.

1.2.3 Implications of Kant's Notion of the a priori

Kant's view of a priori, as applied to judgments and to concepts, has certain implications and leads to certain questions which he is concerned to answer. They may be stated roughly as follows.

(1) When the notion of a certain characteristic has been reached by abstraction from actual perceived instances of it we cannot doubt that the notion has application. But about any notion, such as cause or substance, which has not been reached in that way, the following question arises. What reason is there to think that it applies to anything? How do we know that it is not a mere fiction? We know that many empirical notions which we construct, e.g. that of a mermaid or a dragon, are fictitious. How can we be sure that all a priori notions, such as cause and substance, are not, so to speak, innate fictions or 'idols of the tribe' as Bacon might have said? This is one of the questions which greatly troubled Kant.

(2) There is also another question. There are certain universal judgments which involve these notions and are not merely analytic; e.g. "Every event has a cause", "All changes are merely changes in the states of permanent substance", "No substance can come into or go out of existence", and so on. Men claim to know these propositions. What right have we to feel so certain of such very sweeping statements?

(3) Now Kant's answer to both these questions involves the second sense of a priori, viz. that which make an a priori notion be the notion of a characteristic imposed by the mind in a process of synthesis. For it is roughly as follows. We can be sure that a priori notions are not mere fictions if and only if they be notions of characteristics which our minds impose on all objects that they perceive. This view at once guarantees that these notions have application and limits the range of their application. It ensures that they shall apply to all perceptible objects, and at the same time it shows that we have no reason to believe that they will apply beyond the range of possible sense-perception. I am not going to criticize this theory or to

go into further details about it at present. It suffices to say here that it is a characteristic doctrine of Kant's, and that it explains the connexion between the various senses in which he uses the term a priori.

1.2.4 The Copernican revolution

We can now understand what Kant means when he claims to have made a revolution in philosophy like that which Copernicus made in astronomy. The analogy is as follows. The apparent movements of the planets in the sky are extraordinarily complex; each planet appears not to move in any simple curve, and certain planets seem to move sometimes in one direction, sometimes to stand still, and sometimes to move in the opposite direction. Up to Copernicus's time it was commonly assumed that the earth did not itself move; and, so long as this was assumed, no simplification or unification could be made in the movements of the planets. But Copernicus suggested that the earth is also moving, and that the apparent movements of the planets are compounded out of their own proper movements and the movements of the observer who is carried with the earth. It was then found that all the appearances could be explained by supposing that the earth and the planets move in ellipses round the sun as focus. Now Kant says that the older pre-critical metaphysics is like the pre-Copernican astronomy. It regards our minds as mere mirrors which passively reflect things-in-themselves, just as the old astronomers thought that the earth was at rest and that the apparent movements of the planets were identical with their own proper motions. His own view is that the objects of our knowledge are not things-in-themselves, but are manufactured products in making which our minds play a part. Some of the properties which we ascribe to external objects are really due to the mental processes by which we have unconsciously constructed such objects out of crude sense-data. So there is a real analogy between Kant's step in metaphysics and Copernicus's step in astronomy. There is also, however, an equally important contrast, which Kant does not mention. The pre-Copernican made man the center

of nature, whilst Copernicus regarded the earth as just one moving planet among others. But the pre-Kantians regarded man as a mere observer of nature, whilst Kant makes man a constructor, though not a creator of nature. We do not indeed create nature on his view; for our materials are crude sense-data and these are due to things-in-themselves. But we certainly do construct it on Kant's view; for the *sensa* as they come to us are a mere chaotic mass, and every definite object of human knowledge - such as chairs, tables, atoms, etc. -has been made by selecting and combining *sensa* according to rules which are innate in our minds.

1.2.5 Transcendental Arguments

Kant makes great use of transcendental arguments, and considers that he introduced this kind of argument into philosophy. But so far as I am aware he nowhere explicitly discusses the notion of transcendental arguments. So far as I can see, the following are the characteristics of a transcendental argument. (1) One premise always is, not merely that a certain proposition is true, but also that it is known to be true. E.g. in his transcendental arguments about geometry Kant's premise is not simply that two straight lines cannot enclose a space, but that we know that they cannot. Of course the latter proposition entails the former, but the former does not entail the latter. This suffices to distinguish a transcendental argument about geometry from an ordinary geometrical argument. Even if geometers do in fact know that two straight lines cannot enclose a space, they never use the fact that they know this as a premise in their arguments. Their premise is the fact about two straight lines and not the fact that they know this fact. (2) The next step is to ask: How can we know such propositions? What conditions must be fulfilled if such knowledge is to be possible? (3) The third stage is to argue forward from the conditions that have been discovered at the second stage. And here it seems to me that two different cases arise, one of which is illustrated by Kant's arguments about geometry and the other of which is illustrated by his proofs of the law of causation and of the permanence of substance.

(a) Sometimes the premise takes the following form: 'I know that so-and-so is true in some sense and within a certain range of application; but I don't know precisely in what sense or within what range of application it is true.' In that case the object of the transcendental argument is simply to determine the sense and the limits in which the original propositions can be known to be true. This is the case that arises over geometry. Kant took it for granted that we know that the propositions of Euclidean geometry are true, in some sense, always and everywhere. He then argued that we could know this if and only if the spatial characteristics of perceived objects are supplied by the mind which perceives them. And then he argued from this that we can know such propositions only if we interpret 'always and everywhere' to mean 'in the case of all objects of possible human sense-perception'.

(b) The second form of transcendental argument is used where the proposition to be proved is one which not everyone would admit to be known to be true in any sense or within any range of application. For instance, in arguing with Hume about causation, it is useless to take as one's premise that the law of causation is known to be true in some sense and within some range of application. For, even if this be so in fact, Hume would not have admitted it. Here Kant takes some other proposition which is admittedly known to be true. For instance, a man who would not admit that we know that every event has a cause might yet admit that we know that every event can be dated in a single temporal series. This is in fact one of the premises which Kant takes in his proof of the law of causation. The transcendental argument then runs as follows. We first try to prove that unless certain conditions were fulfilled we could not know that every event can be dated in a single temporal order. And then we try to prove that if these conditions be fulfilled the law of causation must be true with a certain definite interpretation of it and within a certain assigned range of application.

We can now sum up the general features of all transcendental arguments. They all start with the premise that a certain proposition is known to be true in some sense or other and within some range of application. They then try to determine what

conditions must be fulfilled if such knowledge is to be possible. They then use these conditions as the basis of an argument, either to determine the precise meaning and limitations of the original proposition, or to prove that a certain other proposition must be true and to determine its precise meaning and range of application. It will be noticed that the first step of a transcendental argument is regressive; it argues from a fact to its conditions. Now such an argument can hardly be completely conclusive. We cannot be sure that the conditions which we have thought of are the only ones that could possibly explain the facts. So the conclusion of a transcendental argument cannot be more than very highly probable. A fallacy to which all such arguments are liable is the following. When we think that a certain bit of knowledge would be possible only under certain conditions this may be because we are making some tacit assumption about the way in which the mind works. This assumption might not be plausible if we explicitly recognized it. And, even if it be plausible, it may not be true. If we gave up this assumption, we might find that the facts could be explained in several alternative ways. Now Kant does apparently make two general assumptions, one explicit and the other implicit, about the mind; and both are open to question. The explicit assumption is that the ultimate data of sense must be simple isolated atoms. The mind cannot know any complex whole unless it has synthesized or built up this complex whole out of originally simple and isolated elements. This is a very large assumption, and it should not be accepted without discussion. The second and tacit assumption is that the ultimate data of sense are mind-dependent, and indeed are states of the mind which senses them. For Kant there is no distinction between sensations and *sensa*. This again is open to question. There is one other criticism to be made. What Kant claims to prove by his transcendental arguments is that certain propositions, such as the law of causation and the persistence of substance, are true within the interpretation and within the range of application which he gives them. But it is doubtful whether his arguments could prove more than that all human beings must believe them to be true, or must act as if they believed them to be true. And, if this is all that he has really proved, he has not answered Hume, though he has no doubt

gone a good deal beyond Hume. For Hume admitted and asserted that in practice we cannot help acting as if we believed the law of causation to be true. What Kant would have added to Hume would be that no experience in the least like ours would be possible unless we did act in this way. This, if true, is important; but it is a supplement to Hume and not an answer to him.

Consequently, I do not think that there is any logical objection to transcendental arguments as such, provided we recognize that their conclusions are only probable. But we are liable to think that their conclusions are more probable than they really are, because we have made tacit assumptions about the mind and its ways of acting. And we are liable to think that they prove that "x must be true" when they really prove only that "x must be believed in practice by all human beings to be true". I do not think that any of Kant's own transcendental arguments escapes these two criticisms; though it remains quite possible that transcendental arguments could be discovered which were not open to either of them.

CHAPTER 2

HISTORICAL BACKGROUND OF KANT'S THEORY OF KNOWLEDGE

2.1 Critique of 'the Dogmatic Idealism': Berkeley

Kant specifically repudiated Berkeley's idealism in the *Prolegomena* and the second edition of the *Critique*. In both works he responds to the charges of subjectivism, and in so doing distinguishes his position from that of Berkeley, who in the eighteenth century was commonly regarded as a solipsist and denier of the "external world." In contrary to Kant's own critical or transcendental idealism, which explains the possibility of synthetic a priori knowledge within the realm of possible experience, Berkeley is characterized as a "dogmatic" or "visionary idealist." He is judged guilty of "degrading bodies to mere illusion" [B69], of regarding things in space as "merely imaginary entities" [B274], and of holding with all "genuine idealists" that: "all knowledge through the senses and experience is nothing but sheer illusion, and only in the ideas of pure understanding is there truth" [374].

Since Kant viewed Berkeley's "dogmatic idealism" as a logical development of Cartesianism, this task can best be accomplished by means of an analysis of that portion of the *Critique* where Kant most fully defines his transcendental idealism in opposition to the Cartesian theory of ideas, namely the fourth Paralogism in the first edition. We shall endeavor to show that this section of the *Critique* does indeed contain a valid statement of the distinctively Kantian idealism. This idealism will then be briefly compared with Berkeley's position by means of an analysis of their respective treatments of the crucial primary-secondary quality distinction. Finally, in the light of these considerations we shall examine Kant's specific criticisms of Berkeley.

The argument of the fourth Paralogism: "Of Ideality," constitutes the first version of

the "Refutation of Idealism." It is directed specifically against the "empirical idealism" of Descartes, which Kant later came to call "material, or problematic idealism." Kant informs us that the term idealist in this context is not to be understood as referring to those who deny the existence of external sensible objects (the "dogmatic idealist"), "but only to those who do not admit that their existence is known through immediate perception, and who therefore conclude that we can never, by any possible experience, be completely certain as to their reality" [A368].

This idealism, with its conception of the problematic status of the external world, is seen to be a consequence of the Cartesian doctrine of the primacy of the cogito. The decisive feature of this doctrine is the epistemic priority which it grants to inner over outer experience. My own existence and conscious states are held to be the sole objects of direct acquaintance, and the existence of external objects is only ascertainable by means of a process of causal inference. However, in that "the inference from a given effect to a determinate cause is always uncertain, since the effect may be due to more than one cause," Kant concludes:

it always remains doubtful whether the cause be internal or external; whether, that is to say, all the so-called outer perceptions are not a mere play of our inner sense, or whether they stand in relation to actual external objects as their cause. (A368)

This is a classic formulation of the "problem of the external world," and Kant's aim is to show that it is in reality a pseudo-problem, which only arises from the tacit acceptance of a false metaphysical assumption. Kant calls this assumption or standpoint transcendental realism, and he opposes it to his own transcendental idealism. The defining characteristic of transcendental realism is its confusion of appearances with things in themselves. Proponents of this position regard "time and space as something given in themselves, independently of our sensibility" [A369]. As a result of this erroneous conception of space and time they inevitably treat "appearances" or "mere modifications of our sensibility," i. e. objects in space and time, as things in themselves. Although taken in the broadest sense, this may be said to refer to all non-critical standpoints, it most clearly characterizes the

metaphysical position of the philosophers of modern natural science from Descartes to Newton. This view of space and time gave rise in these thinkers to a conception of "reality" or nature as composed of bodies containing only "primary qualities," e.g. extension, figure, weight, motion and solidity, while the so-called "secondary qualities," e. g. colors, sounds and smells, which are equally pervasive features of our everyday experience, were dismissed as subjective, as "mere ideas in the mind" or "sensations," caused, in some manner or other, by the interaction between the "real," mathematically described external world, and the human organism.

Kant's main contention in this section is that it is this misguided realism which gives rise to the equally misguided idealism of the Cartesian school. This is because on the assumption that physical objects exist independently of the mind, the transcendental realist "finds that, judged from this point of view all our sensuous representations are inadequate to establish their reality" [A369]. Here Kant reveals a keen insight into the connection between the metaphysical conception of nature developed by the "new science" and the Cartesian-Lockean theory of ideas, viz. the theory that ideas or sensations are the immediate objects of consciousness. His claim is, in effect, that this standpoint, which presupposes the truth of the mathematical conception of nature, is not able to account for its own possibility. The transcendental realist defines nature or reality in such a way that it remains totally inaccessible to consciousness. He thus is unable to justify the validity of his conception. This leads inevitably to an empirical idealism wherein that which is in fact accessible to consciousness are only its own private and subjective modifications, viz. Cartesian ideas and sensations. It is no doubt with this in mind that Kant concludes:

If we treat outer objects as things in themselves, it is quite impossible to understand how we could arrive at a knowledge of their reality outside us, since we have to rely merely on the representation which is in us. [A378]

In opposition to this view, and to the scepticism which it entails, Kant offers his doctrine of transcendental idealism, which he claims to have established in the

Transcendental Aesthetic. This is defined as "the doctrine that appearances are to be regarded as being, one and all, representations only, not things in themselves" [A369]. Unlike transcendental realism this is held to be consonant with an empirical realism, that is to say, with the view that we have genuine experience of bodies in space, and that these bodies are real, public entities rather than private ideas or sensations. Such a conception of experience would seem to be a necessary presupposition of any natural science, but according to Kant, such a conception can only be justified if we regard the bodies in space, of whose existence we are assured by experience, as mere appearances, and hence as "nothing but a species of my representations, the objects of which are something only through these representations" [A370].

Thus, Kant resolves the problem of knowledge of the external world by showing that the world in question is not, in fact, external in the sense in which transcendental realism believed. In sharp contrast to the empirical idealist, the transcendental idealist has no difficulty in "accepting the existence of matter on the unaided testimony of mere self-consciousness, or of declaring it to be thereby proved in the same manner as the existence of myself as a thinking substance" [A370]. He can therefore maintain that his experience of a world of bodies in space is as immediate and veridical as the experience of his own subjective states. This, however, is only because he regards space and time as forms of human sensibility rather than as things in themselves, so that both they, and the things in them are not external in the "transcendental sense."

As this brief description of Kant's argument suggests, and as Kant explicitly tells us [A372-373], the whole debate between him and the Cartesians, or between transcendental and empirical idealism turns on the meaning of external or "ausser uns (outside us)." According to Kant this term has two distinct meanings, and the confusion between appearances and things in themselves, and the ensuing subjectivism and scepticism is due largely to the failure to properly distinguish between them. From an empirical or commonsense standpoint bodies are "ausser

uns (outside us)" in the sense that they are located in space, not in the mind. It is also possible, however, to take "ausser uns (outside us)" in a "transcendental" or "intellectual sense" "in conformity with the pure concepts of the understanding," and this is the sense in which, according to Kant, it is understood by the transcendental realist. Kant is not explicit as to precisely what he means by this latter sense, but the reference to the pure concepts of the understanding suggest that it involves regarding an external body, or nature itself, as the totality of bodies, as a distinct substance, which therefore stands in ontological independence from our minds. But, Kant argues, to regard the external world of bodies in space as a distinct substance or collection of distinct substances, is to confuse the transcendental with the empirical sense of "ausser uns (outside us)," and therefore not only to confuse appearances with things in themselves, but to create in the process an unbridgeable gulf between the private, "inner world" of thought, and the public, objective world of mathematical natural science.

Given this distinction, however, Cartesian subjectivism and skepticism can be avoided and empirical realism maintained. Bodies or matter can now be determined external in the empirical sense, viz. they are in space, and as such they are directly apprehended by the mind in sense experience. But since space itself is a form of sensibility these bodies are at the same time appearances, which in the transcendental sense are ideal, or in the mind. Yet Kant concludes, this ideality does not prevent us from admitting that "something which may be (in the transcendental sense) outside us, is the cause of our outer intuitions." The point to be kept in mind, however, is that this is not the empirical object, i. e. the object of scientific investigation with which we are here concerned. This latter object, which Kant, in contrast to the empirical object, calls the "transcendental object," and which is here equivalent to the thing in itself, is not apprehended in experience, but is merely "a ground (to us unknown) of the appearances..." [A379-380].

Now, it must be admitted that, apart from this last reference to the mysterious transcendental object, which at first glance seems at odds with the main thrust of

Kant's argument, the basic line of reasoning which Kant adopts here is in many ways similar to what we find in Berkeley's *Principles* and *Dialogues*. What Kant calls transcendental realism includes, although it is far broader than, what Berkeley calls materialism. Moreover, both philosophers address themselves to the Cartesian tradition, and both attack the skeptical implications of the dualism which characterizes This tradition. It is, therefore, indeed tempting to see not merely an anticipation, but an actual influence on Kant when Berkeley writes:

for so long as men thought that real things subsisted without the mind, and that their knowledge was only so far forth real as it was conformable to real things, it follows, they could not be certain that they had any real knowledge at all. For how can it be known, that the things which are perceived, are conformable to those which are not perceived, or exist without the mind? [*Principles* 86]

Furthermore, this similarity extends not only to the diagnosis of the disease, but also to the prescription for the remedy. For both philosophers this remedy is idealism, understood as the identification of the empirically real with the contents of consciousness. Thus, both hold against the Cartesians that we are immediately aware of "real things," and both claim that this can only be justified on the assumption that these "real things" are in some sense mental. Kant calls them appearances or "representations in us" and Berkeley calls them ideas or sensations, whose *esse* is *percipi*. However, despite these terminological differences, their positions are substantially identical.

Nevertheless, it remains the case that Kant was quite insistent upon distinguishing his transcendental or critical idealism from Berkeley's dogmatic idealism. The key to this distinction is obviously the allegedly transcendental or non-empirical nature of Kant's idealism. His claim is that the thesis of the ideality of bodies, their status as appearances, or "mere representations in us," is to be understood in the transcendental, and not in the empirical sense. It is because Berkeley does not understand ideality in this sense that he, in effect, "degrades bodies to mere illusion." Hence, if this is to be rendered intelligible, and Kant's position distinguished from Berkeley's, it will be necessary to determine more precisely the

meaning and justification of this claim.

Kant's most explicit discussion of the transcendental-empirical distinction is to be found in a passage at the beginning of the *Transcendental Logic*. This passage is worth quoting at length since Kant himself tells us that "it extends its influence over all that follows":

Not every kind of knowledge a priori should be called transcendental, but that only by which we know that—and how—certain representations (intuitions or concepts) can be employed or are possible purely a priori. The term 'transcendental', that is to say, signifies such knowledge as concerns the a priori possibility of knowledge, or its a priori employment. Neither space nor any a priori geometrical determination of it is a transcendental representation; what can alone be entitled transcendental is the knowledge that these representations are not of empirical origin, and the possibility that they can yet relate a priori to objects of experience. The application of space to objects in general would likewise be transcendental, but, if restricted solely to objects of sense, it is empirical. The distinction between the transcendental and the empirical belongs therefore only to the critique of knowledge; it does not concern the relation of that knowledge to its objects. [A56/B80-81]

The main importance of this passage lies in its substitution of the "critical" conception of the relation between the transcendental and the empirical for the traditional rational-empirical dichotomy. Thus, instead of a super, trans-empirical science of "Being," the transcendental emerges as a kind of second order knowledge of knowledge, a reflection on the nature, conditions and limits of our a priori knowledge. As a consequence the transcendental-empirical distinction is denied any ontological significance. This is the point of the remark that the distinction "belongs only to the critique of knowledge, it does not concern the relation of that knowledge to its object." Hence, while within the critical perspective it is both possible and necessary to distinguish between our first order, empirical knowledge, and our transcendental or philosophical reflection on the necessary conditions of such knowledge, we cannot venture outside this perspective and lay claim to any "transcendental knowledge" of any transcendental or non-empirical objects, i. e. "objects in general," as opposed to objects of the senses. In Kant's own terms it means that "the proud name of Ontology... give place to the modest title of a mere analytic of the pure understanding" [A247/B303].

This passage also implies, however, that there is an a priori or rational element in our knowledge of empirical objects. This is, of course, the heart of the argument of both the Transcendental Aesthetic and the Transcendental Analytic, which show respectively that there are a priori intuitions and concepts which relate necessarily to all objects of experience. Thus, although pure reason is denied its transcendent or metaphysical pretensions, it is given an immanent role within experience, which is to be distinguished both from its practical use, and its strictly philosophical function of determining the necessary conditions and limits of empirical knowledge.

The key to this critical standpoint, the feature which most sharply distinguishes it from both rationalism and empiricism, is the affirmation of an a priori element in sensibility. This is the theme of the "metaphysical expositions" of the concepts of space and time. Here Kant argues for the a priority of both space and time, and consequently, their status as forms of sensibility, on the grounds that they are conditions of possible appearances rather than determinations dependent upon, or empirical representations derived from these appearances. This is accomplished by means of the demonstration of the inevitable circularity of any attempt to account for our conceptions of space and time in a purely empirical or psychological manner.

Reduced to its simplest terms, Kant's main point is that we cannot hold with the empiricists that these conceptions are derived from our prior experience of externality and succession, because they are necessarily presupposed in any such experience. Thus, rather than abstractions from the concrete relations between things, space and time must be affirmed to have a logical or conceptual priority over these things, as they provide the framework in which alone we can experience these relations. This priority is what Kant means by a priority, and it is also the basis for the ideality of space and time. This latter point is a direct consequence of the basic Kantian principle which underlies the entire argument of the Critique: "We can know a priori of things only what we ourselves put into them" [BXVIII]. As

a priori space and time must have their source in the subjective constitution of the human mind. Thus, they only serve to determine the relations of appearances and not things in themselves.

Space and time, however, are not merely forms of sensibility or intuition, but they are also themselves pure intuitions. As such they can function as the source of the synthetic a priori propositions found in both pure and applied mathematics. This is the point of the "Transcendental Exposition" of space and time. Here Kant argues that if we view space and time as empirical concepts, abstracted from experience, then mathematics would be a merely empirical science, and as such, lacking in necessity. If, on the other hand, we view space and time as a priori concepts, either clear or confused, rather than intuitions, then mathematics becomes a merely analytical science and its application to nature rendered inexplicable. It is, therefore, only on the assumption that space and time are a priori forms of intuition and themselves pure intuitions that the possibility of mathematics and a mathematical science of nature can be explained.

It is here that we find the ultimate basis both for Kant's empirical realism and his critique of transcendental realism. As we have already seen, Kant defines empirical realism as the doctrine that we are as immediately aware of bodies in space as ourselves in time. Consequently, our judgments about such bodies are exempt from the skeptical difficulties imagined by the Cartesians.

But these judgments are for Kant, as for Descartes, essentially those of the mathematical physicist. Thus, the justification of such a realism is equivalent to the justification of the possibility of a mathematical science of nature. This, however, requires the recognition of the a priori character of the forms of sensibility, and hence its distinction from the understanding. If this distinction be lost sight of, then bodies in space will inevitably be regarded as transcendently real, i. e. things in themselves, with the result that such bodies will be held to be either unknowable (skeptical idealism) or non-existent (dogmatic idealism). The recognition, however,

of the a priori nature of the forms of sensibility, and the transcendental ideality of the objects of experience which it entails, not only provides the means for understanding the error of the Cartesian position, but also for justifying an empirical realism, and consequently, explaining the possibility of a mathematical science of nature.

The ideality which characterizes the objects of experience can be regarded as transcendental in a two-fold sense. First of all, it is arrived at by means of a critical reflection on the necessary conditions of our a priori knowledge rather than by a metaphysical reflection on the nature of being. In this regard it stands in sharp contrast with the demonstration of the impossibility of matter, which according to Kant constitutes the basic claim of "dogmatic idealism" [A377]. Moreover, this difference in method also results in a fundamentally different conception of ideality. The basic characteristic of the empirical or dogmatic idealism which Kant attacks is the essentially private nature of the objects of awareness. These objects are ideal or subjective in the sense that they are private sense data, standing in temporal, but not spatial relations. This is why they are characterized as ideas or sensations. The claim that they exist in the mind is consequently of an empirical nature, and is supported by factual arguments such as the appeal to perceptual illusion.

In contradistinction to the Cartesian theory of ideas, the basic feature of Kant's transcendental idealism is its affirmation of the public or objective nature of the objects of "outer experience." These objects are bodies in space rather than Cartesian ideas or sensations. It is true that the bodies are appearances, and as such, "representations in us." Nevertheless, it is equally clear that Kantian appearances are not "in us" in the same sense as Cartesian ideas, or Berkeleian sensible things. The latter, as is befitting their private status, are properly located in the empirical or individual consciousness. As "transcendentally ideal," however, Kantian appearances are referred to what he calls in the Critique: "transcendental consciousness," and in the *Prolegomena*: "consciousness in general."

This transcendental consciousness, and its equivalent, transcendental apperception is not to be construed as either an individual or super-individual mind. Kant defines it quite simply as "the bare representation I" [A117 note] which constitutes the logical form of all knowledge. It is thus a logical principle, which much like a Platonic archetype, provides the form of unity to which every empirical, i. e. individual consciousness, must conform if it is to yield consciousness of a public, objective world. To say, therefore, with Kant that appearances are representations in the mind is not to make either a psychological or an ontological claim, but merely to point to the subjective sources of the a priori conditions to which every object of experience must conform. These subjective conditions are not the ground of the being of objects of experience, but of their being known, and these objects of experience are called appearances because they can only be known in relation to these subjective conditions, and hence, not as they are in themselves. The claim is of a completely different order than Berkeley's contention that sensible things are "collections of ideas," understood in the Cartesian sense as contents of an individual consciousness. Both were designed to overcome Cartesian skepticism, but while Berkeley does so by dismissing one of the members of the duality, viz. matter or *res extensa*, Kant does so by putting the whole problem in a radically new perspective.

The fundamental difference between the idealisms of Berkeley and Kant can be seen in a more concrete fashion by means of a brief consideration of their respective treatments of the primary-secondary quality distinction. Both rejected this distinction in its traditional form, but their criticisms move in two radically different directions.

Berkeley's criticisms of this distinction are well known. He quite correctly regarded it as one of the basic expressions of the materialism which he was attacking, and he discusses it at length in both the *Principles* and the *Dialogues*. Many of the objections which he raises against it are not particularly original, being taken largely from the skeptical literature. These basically involve the claim that the

arguments for the subjectivity of the secondary qualities, e. g., the relativity of our perception of color and sound, apply equally to the primary qualities. His central criticism, however, does seem to be original with him. This takes the form of an application of the more general critique of the doctrine of representative perception to the distinction in question:

But it is evident from what we have already shown, that extension, figure and motion are only ideas existing in the mind, and that an idea can be like nothing but another idea, and that consequently neither they nor their archetypes can exist in an unperceiving substance. Hence it is plain, that the very notion of what is called matter or corporeal substance, involves a contradiction in it. [*Principles* 9]

Thus, the privileged position which the mathematical physicists give to the spatial characteristics of body is denied. Primary and secondary qualities have precisely the same ontological status. Both are ideas in the mind whose *esse* is *percipi*. Moreover, since these qualities exhaust what we mean by a body or a sensible thing, such things can be defined as "collections of ideas," and as such, have no existence apart from a mind perceiving them. Hence, in repudiating the distinction between primary and secondary qualities, Berkeley is necessarily repudiating the notion of matter or corporeal substance as the alleged support of these qualities. Since all qualities have the same status which was formerly granted only to secondary qualities, the notion of matter becomes completely superfluous.

This leads inevitably to the repudiation of the mechanistic world view which is so intimately connected with this distinction. Since all the qualities of body are nothing but ideas or sensations, all are held to be "visibly inactive." This, Berkeley tells us, is because: "The very being of an idea implies passiveness or inertness in it" [*Principles* 25]. Thus, not only is the conception of the interaction of mind and matter as the cause of our ideas rejected, but the whole notion of mechanical causality is banished from a nature which is composed solely of inert, inactive ideas.

Mechanistic causality is replaced by the activity of the divine will, and the relation

of cause and effect by the relation of sign and thing signified. The divine will imprints those ideas which constitute the system of nature upon the minds of finite spirits in an orderly and uniform manner, and the principles of this uniformity are the laws of nature. Hence, although one idea cannot, strictly speaking, be the cause of another, it can function as its sign; so that the appearance of the one will lead the mind to expect the advent of the other. Since the principles of this uniformity are dependent upon the divine will, they can be learned only by experience. Nevertheless, such experience, Berkeley contends, "gives us a sort of foresight, which enables us to regulate our actions for the benefit of life" [*Principles* 31].

Berkeley's attitude towards Newtonian science must be understood in light of this essentially religious, and from Kant's point of view, dogmatic and mystical standpoint. Berkeley presents himself in the *Principles* not as an enemy of science, but merely as a critic of its false metaphysical assumptions. These include the doctrine of matter and its infinite divisibility, and the conceptions of absolute space, time and motion. His claim is that by ridding science of these vacuous abstractions, he is not only disposing of excess baggage, but also avoiding the atheistic and skeptical implications of the Newtonian world view. In point of fact, however, Berkeley only grants a strictly pragmatic value to science. Its legitimate function is not to uncover causes, this being defined as the task of metaphysics, or "first philosophy, " but merely to discover analogies and regularities, which, since they depend upon the will of God, have no inherent necessity, and thus, cannot be known a priori. Knowledge of these regularities are indeed necessary for the conduct of life. Nevertheless, their discovery, and the formation of "mathematical hypotheses" in terms of which they are described, should not be confused with genuine, i. e. philosophical insight into the true nature and cause of things. This viewpoint can already be found in the *Principles*, where after describing the nature and purpose of scientific explanation, Berkeley concludes:

Only by meditation and reasoning can truly active causes be rescued from the surrounding darkness and be to some extent known. To deal with them is the business

of first philosophy or metaphysics. Allot to each science its own province; assign its bounds; accurately distinguish the principles and objects belonging to each. Thus it will be possible to treat them with greater ease and clarity. [72]

Kant likewise rejected the primary-secondary quality distinction in the form in which it is found in thinkers such as Descartes and Newton. He did so because he saw it as a reflection of that transcendental realism which is based upon a failure to distinguish between empirical and transcendental externality, and which leads inevitably to empirical idealism and skepticism.

Thus, Kant like Berkeley rejects the Newtonian metaphysical scheme wherein absolute space and time are conceived as two transcendently real, infinite containers, within which bodies, composed of primary qualities, move and are located, while the sensible qualities, motion and place of the objects of our daily experience are regarded as subjective or "apparent." Unlike Berkeley, however, Kant re-interprets rather than repudiates this distinction and the mechanistic conception of nature with which it is entwined.

Kant's reinterpretation of this distinction is a direct consequence of his more basic distinction between transcendental and empirical subjectivity. This is not apparent in the brief discussion in the *Prolegomena* [289- 290], where Kant does indeed sound very much like Berkeley. It is, however, quite clear in the Critique and especially in the central discussion at the end of the treatment of space [A28-30-B44-45] . Here Kant explicitly distinguishes between the subjectivity of space, and a fortiori of the primary or spatial qualities of objects, and the subjectivity of the secondary qualities. The basis for this distinction lies in the fact that "with the sole exception of space there is no subjective representation, referring to something outer, which could be entitled objective."

This point is developed somewhat differently in the two editions. In the first version Kant distinguishes between spatial and secondary qualities on the grounds that in contradistinction to the latter, which do not belong to the object, even regarded as appearance, but to the "special constitution of sense in the subject,"

space and its determinations, "as a condition of outer objects, necessarily belongs to their appearance or intuition." As in the traditional view, spatial characteristics are regarded as inseparable from body, while the so-called secondary qualities are "connected with the appearances only as effects accidentally added by the particular constitution of the sense organs."

This is essentially the Cartesian, Lockean, Newtonian doctrine, now viewed as holding within the phenomenal realm. Understood in this sense, secondary qualities are empirically subjective, while primary qualities are empirically real and defining characteristics of appearances. Finally, Kant adds, almost as an afterthought, that although no one can have a priori representations of colors and tastes, since they are merely sensations in the mind, "all kinds and determinations of space can and must be represented a priori, if concepts of figures and of their relations are to arise" [A30].

In the second edition it is precisely the a priori character of space, and its function as the source of synthetic a priori knowledge which bears the brunt of the argument. There is, Kant here claims, no other subjective representation from which we can derive a priori synthetic propositions as we can from intuition in space [B44]. Hence, although other representations are indeed subjective, they "strictly speaking" have no ideality. Rather than being sources of a priori knowledge, they merely belong to the subjective constitution of our manner of sensibility. As "mere sensations" or private data of the individual consciousness, they do not have any cognitive function, i. e. they do not serve to determine an object.

This provides us with a clear expression of the transcendental character of Kant's idealism. All representations are subjective, or "in the mind," but only those which function as sources of a priori knowledge are deemed "ideal." Furthermore, the distinction between empirical and transcendental subjectivity or ideality is formulated in terms of the presence or absence of a cognitive function. Secondary

qualities thus keep their traditional status as sensations in the mind which do not represent anything in nature. The primary or spatial qualities, on the other hand, are objective in that they are, as science teaches, the essential properties of body or matter. To be sure, space together with its determinations are ideal, but this ideality must be understood in the transcendental sense, and so regarded is a critical reminder that nothing intuited in space is a thing in itself, that space is not a form inhering in things in themselves as their intrinsic property, that objects in themselves are quite unknown to us, and that what we call outer objects are nothing but mere representations of our sensibility, the form of which is space. The true correlate of sensibility, the thing in itself, is not known, and cannot be known, through these representations; and in experience no question is ever asked in regard to it. [A30/B45]

Now although it may seem somewhat paradoxical, it is clear that when viewed from Kant's transcendental standpoint, Berkeley's idealism can be regarded as an offshoot of transcendental realism. Certainly in his critique of materialism Berkeley did not arrive at the Kantian conception of transcendental subjectivity. All of the ideas or sensations which together constitute the sensible world are, for Berkeley, in the mind in precisely the same sense as the ideas of secondary qualities are for the Cartesians. This, as we have seen, was the whole point of his critique of the primary-secondary quality distinction. Unlike Kant, Berkeley never really breaks with the Cartesian theory of ideas. He assumes from the beginning that the immediate objects of consciousness are ideas, and in rejecting the other half of the Cartesian dualism proceeds to identify these ideas with "real things." Such a move, however, will simply not work. Cartesian ideas are in their very nature private objects of the individual consciousness. As such their significance is determined by their contrast to "real things" or *rerum natura*. This was the point of Kant's reflection that empirical idealism is merely the reverse side of a transcendental realism. Thus, to identify these ideas with "real things" is indeed to commit oneself to a radical subjectivism, which leads ultimately to the denial of the distinction between truth

and illusion.

Berkeley, of course, did not see this, and he did not see it because he was still a captive of the Cartesian principles which he attacked. His polemic with "materialism" is carried on from beginning to end within the old categories: nature must be either transcendently real (a distinct substance or collection thereof) or empirically ideal (a collection of ideas in individual consciousness). He saw quite clearly the difficulties of the former view, and in this regard he may be said to have anticipated Kant. Envisioning, however, no third alternative, he had no choice but to opt for the latter view despite its even greater absurdities. The result is a position which Kant defined as dogmatic idealism. Since it is a development of the Cartesian position, Kant's refutation of the former applies a fortiori to the latter, and this in general seems to have been the way in which Kant regarded the matter. Nevertheless, in response to certain criticisms of his own position he was forced to deal specifically with Berkeley, and it is to these specific criticisms that we now turn. The earliest references to Berkeley are to be found in the *Prolegomena*. The first references are in the Notes to §13, wherein Kant defines his transcendental or better critical idealism in relation to other forms of idealism, including Berkeley's. Note I contains a reiteration of the familiar claim that the doctrine of the transcendental ideality of space is the only possible basis for the justification of the objective validity of geometry. In Note II Kant proceeds to distinguish his position from idealism on the grounds that real idealism asserts "that there are none but thinking beings," and consequently denies the existence of things in themselves external to the thinking subject. In opposition to this Kant declares:

There are things given to us as objects of our senses existing outside us, yet we know nothing of them as they may be in themselves, but are acquainted only with their appearances, i.e., with the representations that they produce in us because they affect our senses. Accordingly, I by all means avow that there are bodies outside us, i.e., things which, though completely unknown" to us as to what they may be in themselves, we know through the representations which their influence on our sensibility provides for us, and to which we give the name of a body – which word therefore merely signifies the appearance of this object that is unknown to us but is nonetheless real. Can this be called idealism? It is the very opposite of it. [*Prolegomena*,

4: 289]

In Note II this view is developed specifically in reference to the "visionary idealism of Berkeley" which is alleged to "convert actual things [wirkliche Sachen] (not appearances) into mere representations." In regard to this Kant proclaims:

For what I called idealism did not concern the existence of things (the doubting of which, however, properly constitutes idealism according to the received meaning), for it never came into my mind to doubt that, but only the sensory representation of things, to which space and time above all belong. [*Prolegomena*, 4: 293]

Kantian appearances, like Cartesian ideas, require a correlate. Their status is only adequately defined in contrast to something which is transcendently real, or "real per se." Unlike Cartesian ideas, however, they are not empirically ideal, i. e. they are not the private data of an individual consciousness. This is because the thing in itself, unlike the Cartesian *res extensa*, is not another sort of entity, ontologically distinct from the appearances in the mind. Rather it is one and the same thing regarded in a different manner, i. e. as existing independently of the subjective forms of sensibility through which it is given to the human mind. It is because sensibility has a priori forms (space and time) , in terms of which the "matter of experience" is necessarily given to the mind, that the objects of experience are deemed phenomenal or ideal. But this whole account is only intelligible if one assumes a thing in itself which is received by the mind under these subjective conditions. To deny the existence of the thing in itself is thus to deny the Kantian conception of sensibility, and hence of appearance. It is indeed to be guilty of that confusion of appearances and things in themselves which is characteristic of transcendental realism. Kant's real quarrel with idealism concerns the reality of bodies in space, i. e. appearances. Nevertheless, for Kant, the denial of the thing in itself is a denial of the reality of such bodies because it entails a denial of the appearance-thing in itself distinction, in light of which alone the objectivity or reality of such bodies can be demonstrated.

The second reference to Berkeley in the *Prolegomena* is in the portion of the

appendix which is specifically directed against the Garve-Feder review. Kant's purpose is once again to distinguish his idealism from Berkeley's, and it is in this connection that he writes:

The thesis of all genuine idealists, from the Eleatic School up to Bishop Berkeley, is contained in this formula: "All cognition through the senses and experience is nothing but sheer illusion, and there is truth only in the ideas of pure understanding and reason."

The principle that governs and determines my idealism throughout is, on the contrary: "All cognition of things out of mere pure understanding or pure reason is nothing but sheer illusion, and there is truth only in experience." [Prolegomena, 4: 374]

It is perhaps this passage more than any other which has given rise to the charge that Kant's criticisms of Berkeley were the product of ignorance. How, after all, can one otherwise explain the inclusion of this empiricist and critic of abstraction in the Eleatic tradition which denies the evidence of the senses? This is especially incomprehensible in light of Berkeley's explicit and frequent affirmation of the truth of sense experience.

One could argue that this way of viewing the matter is not an accurate assessment of Berkeley's intent. Nevertheless, the important point is that it is perfectly consistent with Kant's conception of sensibility as a source of knowledge with a priori forms. The affirmation of the reality of sense experience is, for Kant, equivalent to the affirmation of the ideality of space and time as a priori forms or conditions of experience.

Kant makes this quite clear in his subsequent explanation of what he knew to be a paradoxical sounding claim. He begins by acknowledging a partial agreement with the "above idealists." This agreement concerns the status of space and time "together with all they contain" as appearances rather than things in themselves. However, Kant continues:

But these idealists, and among them especially Berkeley, viewed space as a merely empirical representation, a representation which, just like the appearances in space together with all of the determinations of space, would be known to us only by means

of experience or perception; I show, on the contrary, first: that space (and time as well, to which Berkeley gave no attention), together with all its determinations, can be cognized by us a priori, since space (as well as time) inheres in us before all perception or experience as a pure form of our sensibility and makes possible all intuition from sensibility, and hence all appearances. From this it follows: that, since truth rests upon universal and necessary laws as its criteria, for Berkeley experience could have no criteria of truth, because its appearances (according to him) had nothing underlying them a priori; from which it then followed that experience is nothing but sheer illusion, whereas for us space and time (in combination with the pure concepts of the understanding) prescribe a priori their law to all possible experience, which law at the same time provides the sure criterion for distinguishing truth from illusion in experience. [*Prolegomena*, 4: 374-375]

The key point here is the contention that space is for Berkeley "a mere empirical representation." This not only suggests a firsthand knowledge of Berkeley's writings, but also serves to underline the crucial Kantian distinction between empirical and transcendental ideality. It thus shows why Kant identified Berkeley's doctrine with the former and hence with illusionism. We have already seen that, as a Newtonian, Kant regards spatiality as a defining characteristic of body. He justifies this on the idealistic grounds that space is an a priori form of sensibility rather than a self-subsistent, infinite container, and he thus claims that it is both empirically real and transcendently ideal. If, however, space be viewed with Berkeley as an empirical representation, the genesis of which is explained by a psychological analysis, then its role as a form or condition of experience is denied. It becomes simply another item of consciousness, dependent upon the pre-given sensations from which it is abstracted. But if this be the case then, according to Kant, we cannot explain the possibility of our experience of a public objective world, not to mention a mathematical science of such a world, and, Kant reasons: "whence it follows that experience is nothing but illusion." This, to be sure, is not Berkeley's thesis.

He does not hold that experience is illusion or illusory; quite the contrary. Kant, however does not claim that this is Berkeley's view. What he does claim, is that this is a necessary consequence of Berkeley's view, and this, we can see, is because his merely empirical conception of space results in a collapse of the distinction between

transcendental and empirical ideality. The two criticisms of Berkeley added in the second edition of the *Critique* are developments of the arguments already sketched in the *Prolegomena*. The first is to be found in an addition to the Aesthetic, where Kant distinguishes between *Erscheinung* and mere *Schein*. The main point is the familiar claim that far from confusing appearance and illusion, the doctrine of transcendental ideality is the only basis for distinguishing between the two.

This is because it is the only basis for establishing the empirical reality of the objects of experience. Thus, in discussing the transcendental ideality of space and time, Kant writes:

It is only if we ascribe objective reality to these forms of representation, that it becomes impossible for us to prevent everything being thereby transformed into mere illusion. For if we regard space and time as properties which, if they are to be possible at all, must be found in things in themselves, and if we reflect on the absurdities in which we are then involved, in that two infinite things, which are not substances, nor anything actually inhering in substances, must yet have existence, nay, must be the necessary condition of the existence of all things, and moreover must continue to exist, even although all existing things be removed, — we cannot blame the good Berkeley for degrading bodies to mere illusion. [B70]

The second reference to Berkeley is contained in the "Refutation of Idealism." As in the first edition, Kant's main concern is with Descartes, but he does add a brief discussion of Berkeley's "dogmatic idealism." Here idealism, now called "material idealism," is defined as the theory "which declares the existence of objects in space outside us either to be merely doubtful and undemonstrable or to be false and impossible." The former is held to be the problematic idealism of Descartes, and the latter the "dogmatic idealism of Berkeley." In reference to Berkeley, Kant writes:

He maintains that space, with all the things of which it is the inseparable condition, is something which is in itself impossible; and he therefore regards the things in space as merely imaginary entities. Dogmatic idealism is unavoidable, if space be interpreted as a property that must belong to things in themselves. For in that case space, and everything to which it serves as condition, is a non-entity. The ground on which this idealism rests has already been undermined by us in the *Transcendental Aesthetic*. [B274]

Like the criticisms in the *Prolegomena*, these passages are intended to show the

consequences of Berkeley's views and not to describe them. Moreover, here, as in the second criticism in the *Prolegomena*, we see that Kant locates the primary source of Berkeley's difficulty in his conception of space. This criticism presupposes the doctrine which Kant shares with the Newtonians, viz. space is a condition of bodies or the objects of outer experience. Thus, to deny the objective reality of space is to deny the empirical reality of body, and this is what Kant means by "degrading bodies to mere illusion." This is, once again, the inevitable result of the confusion of transcendental with empirical ideality. Berkeley, of course, does not argue in precisely the way that Kant suggests. He does not assert that since space and time are unreal, bodies are merely imaginary. He does, however, criticize the Newtonian conception of absolute space and time in the *Principles*, he claims that Newtonian absolute space is a "mere nothing." Thus, Kant is simply pointing to the logical connection between Berkeley's critique of the doctrine of absolute space and his conception of sensible things as empirically ideal "collections of ideas."

2.2 The Interruption of the 'Dogmatic Slumber': Hume

Both Kant and Hume considered the notion of necessary connection to be a crucial component of our concept of causality. Writing in *Treatise* I.iii.2, Hume remarked,

Shall we then rest contented with these two relations of contiguity and succession, as affording a compleat idea of causation? By no means. An object may be contiguous and prior to another, without being consider'd as its cause. There is a NECESSARY CONNEXION to be taken into consideration; and that relation is of much greater importance, than any of the other two above-mention'd. [T: 77]

Kant agreed with this claim. Indeed, it was precisely because he thought that Hume had failed to provide for any real sense of necessary connection that he considered Hume to have launched an attack on the concept of causality and thereby on the whole of metaphysics [*Prolegomena*, 4: 257-258]:

the concept of a cause so obviously contains the concept of a necessity of the connection with an effect and a strict universality of the rule, that it would be completely lost if one wanted to try, like Hume, to derive it from a frequent conjunction of that which happens with that which precedes it, and a consequent

tendency to associate representations (hence, a merely subjective necessity). [B5]

But what are Kant and Hume thinking of when they make reference to necessary connection? Are they thinking of the same thing? If they are, is Kant right to charge that Hume could not derive this notion from an experience of "frequent" conjunction, so that Hume's account of causality must in fact be taken as a denial of the possibility of necessary connections and an "attack" on the concept of cause?

If not, does Kant's alternative attempt to provide an a priori ground for the concept of necessary connection have any significant implications for the understanding of how to go about discovering and testing causal hypotheses, or is it a moot point, that concerns merely the origin and not the application of the concept of cause?

"Necessary connection" does not mean the same thing to all early modern philosophers. There are two, broadly distinct ways in which this notion was understood in the 17th and 18th centuries, and there are important variants on each of these two ways. In one sense—a sense that I take to have been developed by Hume though it has antecedents in early modern occasionalism—a necessary connection was taken to be exactly what the name implies—a connection that holds necessarily between two things, so that whenever one is given, the other must necessarily follow it. Why this connection is necessary is not explained, however (at least not by Hume); it is merely asserted that it obtains. This is the conception of necessary connection that underwrites Hume's "first" definition of causality:

we may define a cause to be an object, followed by another, and where all the objects similar to the first are followed by objects similar to the second. Or in other words where, if the first object had not been, the second never had existed. [EHU: 76, italics omitted]

In a second sense—a sense I take Hume to have been reacting to—"necessary connection" is synonymous with such terms as "force," "power," or "ability." In this sense, which is common to Descartes and the Scholastics, the necessity in "necessary connection" is not so much a feature of the relation between an earlier event and a later one, as a property of the earlier event itself. The earlier event is

thought to be what "necessitates" the later event—to possess some ability to make the later event happen. It might also be thought to have a capacity to refrain from exercising this ability, or to have its exercise of this ability impeded by external circumstances, so that even though it "necessitates" its effect, it does not "necessarily" always do so, and therefore need not be "necessarily connected" to its effect in the first sense.

As is well known, Hume reacted to this second view by claiming that, even if there were forces or powers in causes, we could have absolutely no knowledge of them, so that a conception of cause combined with such a notion would be absolutely useless and inapplicable. The very ideas of force and power are empty, and we have only adopted them because we mistakenly took something quite different and confused this purely subjective feeling with a property of the cause. This is the position summarized in Hume's "second" definition of cause: "an object followed by another, and whose appearance always conveys the thought to that other" [EHU: 77, italics omitted]. This definition effectively reduces the notions of force and power to the subjective sense of a felt transition in the mind. It denies, therefore, that causes are objectively anything other than events that are always followed by certain other events.

The first of the two views of causality and necessary connection that I have described may be called the "regularity model" of causality (since it takes causality to consist in a law-governed succession of events), the second the "power model." The first takes causes to be nothing more than events that are always followed by certain other events; the second takes them to be agencies responsible for bringing the effect into being. I said that there are variants on each of these models. One variant on the power model had it that causes are enabled to bring their effects about because they somehow already contain them and are able to draw them out of themselves. Causality is, on this view, a process analogous to giving birth, and causes must be "adequate" to produce their effects in the sense that they must "contain at least as much" as is to be found in their effects. This notion of causality,

together with the attendant principle that causes must contain at least as much as their effects, was as heavily relied upon by Descartes, most notoriously in his Third Meditation argument for the existence of God.³ Descartes had good reason to be attracted to this "excretion model" of causality, for it allows us to do causal reasoning a priori. If causes must be adequate to produce their effects, then by inspecting those effects we can tell something about what their causes must have been like, even in advance of ever having seen these causes. This makes it possible to try to pierce the veil of perception by arguing from the character of our perceptions to the character of the things in themselves that are supposed to bring them about, as Descartes does in his sixth Meditation proof of the existence of an external world, or to try to prove the existence of God by means of a cosmological or teleological argument.

Such inference from given effects to unseen causes is impossible, however, if one supposes, following the regularity model, that a cause is nothing more than an event that is always followed by a certain effect. In that case, the only way to determine the cause of a given effect is by experience—by looking for some type of event that is such that, whenever it occurs, it is always followed by the effect. Hume is explicit in endorsing this consequence:

If we reason a priori, anything may appear able to produce anything. The falling of a pebble may, for aught we know, extinguish the sun; or the wish of a man control the planets in their orbits. It is only experience, which teaches us the nature and bounds of cause and effect, and enables us to infer the existence of one object from that of another.⁴ [EHU: 164, see also EHU: 29-30, T: 111-112, 173, 247, 249-50].

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- 3 The view is, however, qualified by Descartes' insistence that there may be "eminent" causes, that is, causes that are able to bring about effects they themselves do not contain. The notion of eminent causality was forced on Descartes by the need to preserve the thesis that God, who is an immaterial and unextended spirit, created the extended, material world. However, it is strictly an exception to the conception of causality he otherwise works with.
- 4 Hume here adds this note: "that impious maxim of the ancient philosophy, *ex nihilo, nihil fit*, by which the creation of matter was excluded, ceases to be a maxim according to this philosophy." His point in denying *ex nihilo nihil fit* is not to claim that an event might not have any cause, but that it might have a cause that does not contain it, so that rather than "come out" of the cause, the effect comes out of nothing, as it were.

This result makes quite blatant a feature of the regularity model that is already contained implicitly in its very definition: that there can be no idiosyncratic causal relations. On the regularity model, the only thing that distinguishes a sequence of unrelated perceptions, that only accidentally happen to be experienced after one another, from a sequence of causally related events is that the latter sequence is supposed to be replicated in every other instance where one or the other of the events occurs. But if the sequence is to have this character, the events in the sequence must belong to types, so that it makes some sense to refer to previous or subsequent instances of their occurring. This is again a consequence that Hume explicitly endorses:

I much doubt whether it be possible for a cause...to be of so singular and particular a nature as to have no parallel and no similarity with any other cause or object, that has ever fallen under our observation. It is only when two species of objects are found to be constantly conjoined, that we can infer the one from the other; and were an effect presented, which was entirely singular, and could not be comprehended under any known species, I do not see, that we could form any conjecture or inference concerning its cause. [EHU: 148, see also DNR: 149]

A sequence of events that only occurs once, without conforming to any pattern, cannot be a causal sequence. In a world where lightning strikes only once in history, lightning could not be said to be the cause of thunder (unless, of course, lightning and thunder could be shown to be analogous to certain other phenomena that do regularly occur in succession, like percussion and sound).

For the power and excretion models of causality and necessary connection, in contrast, this is not the case. These models take a cause to be the thing that makes its effect happen, and this is a property that the cause possesses independently of whether there is anything else like it, or anything else like its effect, in the universe. Thus, if lightning is conceived to be the thing that makes thunder happen, it makes no difference whether it is a unique event in history or whether it belongs to a type of event that occurs many times—either way it can still be what makes thunder happen. But since the regularity model does not recognize causes as forces or powers that make effects happen, it cannot pick on anything in the individual cause

itself that makes it a cause. Causes just are what is always followed by the same type of event, and what is not always followed by the same type of event cannot, by definition, be a cause.⁵

Another way to put this point is to say that, on the regularity model, the principle that every event has some cause cannot be divorced from the principle that same causes have same effects. For an event to have a cause just is for it to be of a type that always follows some other type of event.⁶

So far, we have argued that Hume championed the regularity model of causality and necessary connection. Let us now turn to consider Kant's position. His claim to have offered an alternative to Hume's position notwithstanding, Kant was as opposed to the rival power and excretion models of necessary connection as Hume. He did not accept, for instance, that if we are given an effect we can infer the nature of its cause a priori, by appealing to the notion that causes must be adequate to produce their effects, or must contain at least as much reality as their effects. Though Kant does think that there is something that we can know a priori about

5 EHU: 82. It is sometimes objected that the regularity theory confuses causality with correlation, and that if that were allowed, then night could be said to be the cause of day and the whistle that always blows just as the train enters the station could be said to be the cause of the train's arrival. While my purpose in this paper is not to defend the regularity model, but just to investigate Hume's and Kant's commitment to it, it bears noting in passing that these are poor counterexamples, and that no one has yet succeeded at giving good ones: examples of a correlation that occurs always and without exception but that would not plausibly be taken to be a causal relation. The example of night and day is not a good one because night is not in fact constantly conjoined with day. One moment of night is far more often followed by another moment of night than one of day. The example of the whistle and the train is not a good one because we already have certain beliefs about the kinds of causal relations that are in the background in this case and these background beliefs make it easy for us to imagine that, say, were the whistle to malfunction and not blow just as the train was pulling into the station, the train would still arrive at the platform. Here, again, the necessity of the connection is violated, albeit not by a direct experience, as in the case of night being followed by more night, but rather by a deduction from background beliefs concerning already established causal relations. A true counterexample to the regularity model would present a case of a correlation that has no observed exceptions, that could not readily be shown to be merely accidental by appeal to previously established background causal rules, but that nonetheless could not plausibly be supposed to be a causal relation.

6 This observation has also been made by Friedman, 1992, 170–71.

causality, it is just the general principle that every event must have some cause upon which it follows "in accord with a rule" (i.e., necessarily). He makes it fairly clear, however, that it is only through experience that we can ascertain what this cause is.

When, therefore, previously hard wax melts, I can know a priori that something had to have preceded (such as the warmth of the sun) upon which this event follows in accord with a constant law. However, without experience I certainly could not discover either the cause from the effect or the effect from the cause; I could not, a priori and without learning from experience, know this determinately. [A766/B794]

Because they concern empirically determined appearances, particular laws can not be completely derived from [the pure intellectual capacity, using mere categories to legislate a priori laws to appearances], though particular laws all stand under [those laws that concern nature in general, and the conformity, in principle, of appearances in space and time to laws]. Experience must be consulted in order to learn any particular laws. [B165]

How anything in general can be altered—how it might be [A:is] possible that, upon a given state at one time an opposed state should follow at another time—of this we have not the least concept a priori. For this, the knowledge of actual forces is required, which can only be given empirically (for example, moving forces or, which is the same thing, certain successive appearances, as motions, that signify such forces). But the form of such an alteration, the condition under which, as the emergence of an alternate state, it can alone take place (let the content of the alteration, that is, the state that is altered be what it may), and so the succession of the states itself (the happening), can still be articulated a priori in accord with the law of causality and the conditions of time. [A206-7/B252]

But Kant did not just reject the notion that we can draw conclusions about the nature of causes a priori, from investigation of their effects. He also rejected the more general notion that we have any knowledge of powers or forces in causes, in virtue of which they are enabled to bring their effects about. Though he thought we could certainly use the concepts of force and activity, he also supposed that all that these concepts ultimately refer to is the effects of other, more fundamental forces and abilities, that are themselves ultimately inexplicable and that we only know through their operations—that is, through the fact that certain events constantly follow upon certain other events in nature. This is already indicated by one of the parenthetical remarks in the passage just cited, where Kant notes that "moving forces" (e.g., gravitation, repulsion, inertia, collision) are, as far as we are concerned, "the same thing" as "certain successive motions, as appearances, that

signify such forces." And the point is further cemented by some passages from the MFNS.

For it lies altogether beyond the horizon of our reason to comprehend original forces a priori with respect to their possibility; all natural philosophy consists, rather, in the reduction of given, apparently different forces to a smaller number of forces and powers that explain the actions of the former, although this reduction proceeds only up to fundamental forces, beyond which our reason cannot go. [MFNS, 4:534]

That the possibility of the fundamental forces should be made conceivable is a completely impossible demand; for they are called fundamental forces precisely because they cannot be derived from any other, that is, they can in no way be conceived. [MFNS, 4: 513]

These are claims that could have been made by Hume. In fact, they were made by Hume:

no philosopher, who is rational and modest, has ever pretended to assign the ultimate cause of any natural operation, or to show distinctly the action of that power, which produces any single effect in the universe. It is confessed, that the utmost effort of human reason is to reduce the principles, productive of natural phenomena, to a greater simplicity, and to resolve the many particular effects into a few general causes, by means of reasonings from analogy, experience, and observation. But as to the causes of these general causes, we should in vain attempt their discovery; nor shall we ever be able to satisfy ourselves, by any particular explication of them. These ultimate springs and principles are totally shut up from human curiosity and enquiry. Elasticity, gravity, cohesion of parts, communication of motion by impulse; these are probably the ultimate causes and principles which we shall ever discover in nature; and we may esteem ourselves sufficiently happy, if, by accurate enquiry and reasoning, we can trace up the particular phenomena to, or near to, these general principles. [EHU: 30]

Besides rejecting the power model, Kant also agrees with Hume in accepting a regularity model. For Kant, as for Hume, a cause just is an event that is always followed by a particular kind of effect. Kant does, of course, want to insist on the a priori validity and counterfactual force of this "always"; it does not just mean "always, so far as has up to now been observed"; it means, "could not have been otherwise." But be that as it may, it is *necessary succession* that Kant has in mind when he refers to "necessary connection," not *necessitating power*.

The schema of the effect and the cause of a thing in general is the real that, whenever it is given is always followed by some other thing. It consists, therefore, in the succession of the manifold, insofar as it is subject to a rule. [A144/B183]⁷

Were I to leave out of the concept of cause the time, in which something follows upon something else in accord with a rule, then I would find nothing more in the pure category than that a "cause" would be something from which one would be allowed to conclude the existence of something else, and in that case, not only would cause and effect not be distinct from one another, I would have no idea what the features are in virtue of which this concept would apply to any object, because the ability to draw these sorts of conclusions about the existence of something else would depend on conditions of which I know nothing. [A243/B301]

Kant, in short, is no less a regularity theorist than Hume.⁸

But if Kant and Hume are thus in agreement about the nature of necessary connection, why did Kant represent himself as having defended the concept of causality from Hume's conclusions?

Both the regularity and the power models of causality come in different versions, and a number of Kant's remarks about Hume suggest that he took Hume to advocate a different version of the regularity model—one that denies that the connection between a cause and its effect is absolutely necessary and holds instead that it is merely statistically probable.

[Hume] took all the supposed a priori principles of understanding to be fictive, and found that they are nothing but custom arising from experience and its laws, and consequently merely empirical, that is, intrinsically contingent rules to which we ascribe a pretended necessity and universality. [A765/B793, see also A195-96/B240-241]

However, empiricist though he was, Hume also took the connection between a

⁷ See also A193/B238–39, A198/B243–44, A200/B246, and A201/B246–7 (all from the Second Analogy), where Kant insists that every event must not only have some other event upon which it follows, but that it must follow “always,” “without exception,” and “necessarily,” upon this other event. On the power and excretion models, a cause can refrain from exercising its power to bring an effect about, or can have its exercise of this power impeded, and still be considered the cause, for on those accounts it is the possession of a power or faculty that marks a cause as cause. For Kant, in contrast, it is the constancy of the succession that does this, and no true cause can ever fail to be followed by its effect.

⁸ There is one Kantian text, A910/B124, that appears to reject the regularity model and endorse a power model of causality and necessary connection.

cause and its effect to be absolutely necessary and strictly universal. This is already indicated by the passage cited above from EHU: 76, where Hume defines a cause as "an object, followed by another, and where all the objects similar to the first are followed by objects similar to the second. Or in other words where, if the first object had not been, the second never had existed." Note the reference to "all" objects and the counterfactual formulation of the second sentence, which rules out any exceptions.

It is nonetheless the case that the necessity of the connection between cause and effect is something that is given less importance in the *Enquiry*. One can come away from a reading of that work, particularly of *Enquiry* VI and the notorious X, with the impression that Hume was willing to allow that causes might sometimes fail of their effects.⁹ It is only in *Enquiry* VIIIi, "Of Liberty and Necessity," and then only incidentally, that Hume makes it clear that this is a vulgar error, and that, "philosophically" considered, an event that even once fails to be followed by an effect can never be the true cause of that effect.¹⁰ Indeed, it is only in the Treatise

9 The relevant passages are the following, from EHU: 57–58: "But there are other causes, which have been found more irregular and uncertain; nor has rhubarb always proved a purge, or opium a soporific to every one, who has taken these medicines. It is true, when any cause fails of producing its usual effect, philosophers ascribe not this to any irregularity in nature; but suppose, that some secret causes, in the particular structure of parts, have prevented the operation. Our reasonings, however, and conclusions concerning the event are the same as if this principle had no place," and from EHU: 110: "All effects follow not with like certainty from their supposed causes. Some events are found, in all countries and all ages, to have been constantly conjoined together: Others are found to have been more variable, and sometimes to disappoint our expectations; so that, in our reasonings concerning matter of fact, there are all imaginable degrees of assurance, from the highest certainty to the lowest species of moral evidence." Note the almost dismissive manner in which the principle of the necessity of the connection between causes and effects is introduced into the first of these passages (as the belief incidentally held by "philosophers") and the almost invisible reference to the crucial qualification, supposed causes, in the second. Compare this with the treatment the principle gets in the passages from the Treatise, cited below.

10 The relevant passage is EHU: 86–87, particularly the following, from EHU: 87: "Thus, for instance, in the human body, when the usual symptoms of health or sickness disappoint our expectation; when medicines operate not with their wonted powers; when irregular events follow from any particular cause; the philosopher and physician are not surprised at the matter, nor are ever tempted to deny, in general, the necessity and uniformity of those principles by which the animal economy is conducted. They know that a human body is a mighty complicated machine: That many secret powers lurk in it, which are

that Hume fully integrates his position on the necessity of the connection between causes and effects with his theory of causality, and shows how the former follows from the latter.¹¹ If Kant did not know the Treatise, or if he knew it only at second hand through Beattie's excerpts or Hamann's partial translation, he might not even have been aware of the crucial passages.¹²

Where Hume really does differ from Kant, however, is in his conception of what leads us to suppose that causes are necessarily connected to their effects. For Hume, the necessity of the connection between causes and effects is a "general rule" that we learn from countless experiences [T 104-5]. The uniformity (and consequent persuasive force) of our experiences in this matter are in large part due to a discovery we make about the nature of causes: that they tend to often be accompanied by other, "superfluous circumstances" [T 148]. Because these superfluous circumstances regularly accompany the true cause, they can be easily confused with it. And we have discovered that in all past cases where causes have purportedly failed of their effects, what really happened was that only the superfluous circumstances were present. The violation of the causal rule was merely apparent because we misidentified the superfluous circumstances with the true cause [T 149-50].

For Kant, in contrast, our belief in the necessity of the connection between causes

altogether beyond our comprehension: That to us it must often appear very uncertain in its operations: And that therefore the irregular events, which outwardly discover themselves, can be no proof that the laws of nature are not observed with the greatest regularity in its internal operations." Insofar as Hume recognizes a "vulgar" as well as a "philosophical" conception of the causal relation, he deserves to be praised for coming much closer to a description of actual human thinking about causality than does Kant, who could never bring himself to admit that a cause could even be conceived to fail of its effect (see, for instance, A910/B124).

11 See T: 104–5, 132 (which Hume copied at EHU: 86–87, but placed in a different context), 149–50, 173–74, and 403–4 from I.iii.8, 12, 13 and 15, and II.iii.1 respectively.

12 James Beattie's *Essay on the Nature and Immutability of Truth* of 1770 (translated into German in 1772 under the title *Versuch über die Natur und Unveränderlichkeit der Wahrheit*) cites only from T I.iii.3 and EHU XI in its discussions of Hume's position on causality. Hamann translated T I.iv.7 by 1772, and the *Dialogues* in 1780. The *Enquiry* had been available in German translation since 1755.

and effects has an a priori warrant. This warrant is not based on any deductive relationship between causes and their effects, of course—as noted earlier, Kant agreed with Hume that we can only tell what the cause of a given effect must have been or what the effect of a given cause will be a posteriori, by determining through experience what follows what. Rather, the warrant comes from a technicality of Kantian transcendental logic: the claim that it is only through the application of the concept of necessary connection (or "succession in accord with a rule," as Kant likes to put it) that we can distinguish between a merely subjective succession in our experiences, of the sort that arises from the shutting of one's eyes or the turning of one's head, and an actual change in the objects of that experience.

Whether he appreciated Hume's necessitarian-regularity model in the *Treatise* or not, most of Kant's expressions of his difference with Hume go exactly to this point. He complains, not so much that Hume denied the necessity of the connection between causes and their effects as that he wrongly attempted to ground this necessity in experience.

the concept of a cause so obviously contains the concept of a necessity of the connection with an effect and a strict universality of the rule [that states that types of event of the one sort always follow those of the other], that it would be completely lost if one wanted to try, like Hume, to derive it from a frequent conjunction of that which happens with that which precedes it, and a consequent tendency to associate representations (hence, a merely subjective necessity). [B5, see also A91/B123-24, B127-28, *Prolegomena* 4:257-260, 277, 310-313]

Thus, Kant and Hume do not disagree over what causes are—Kant, like Hume, considers causes to be events that are necessarily followed by effects, not powers that necessitate those effects. Neither do they disagree over the necessity of this connection—Hume, like Kant, considers causes to be events that are necessarily and not merely probably followed by their effects. Their disagreement is rather over what establishes our belief in the necessity of this connection. Hume takes the belief to be ultimately based on a generalization from past experience, whereas for Kant it is established by a priori considerations.

Why does this disagreement over the basis for our belief in necessary connections matter? The passage just quoted from B5 alludes to two, different and not entirely compatible kinds of concern. On the one hand, Kant charges that the a posteriori considerations that Hume takes to lead to a belief in necessary connection are inadequate to generate this result and thus lead to skepticism about the existence of causal relations—which by definition have to possess this feature. On the other, he hints that Hume's account is able to provide for the emergence of a belief in necessary connections, but only of a "subjective" rather than "objective" kind. The first strand of criticism is perhaps the one that comes out most forcefully at B5, so let us begin with it.

At one level, Kant is able to mount a decisive argument to back up his charge that Hume's a posteriori considerations are inadequate to lead to a belief in the necessity of the connection between cause and effect. Hume would have it that we learn from "many millions" of experiments that it is a general rule that "like objects plac'd in like circumstances will always produce like effects," and, indeed, the reverse, that "the same effect never arises but from the same cause" [T 105,173].¹³ However, Kant can observe that experience can only ever tell us that something is so, not that it must be so [A1, B3]. Anything learned from experience can therefore only have a "presumed and comparative necessity through induction," not the sort of strict necessity that assures us that a violation of the rule could simply not be possible [A91/B123-24].

But Hume could respond to this charge by pointing out that, even if experience is what first gives rise to general rules, such as "same cause same effect" and "same effect same cause," once these rules are established they will exercise what Hume

13 Interestingly, Kant, unlike Hume, seems to have been ambivalent about the "same effect, same cause" principle. A193-940/B239 and *Prolegomena*, 4: 312 appear to deny it, but in the Postulates Kant treats both inferences from causes to effects and inferences from effects to causes as equally legitimate, though he takes it that whereas the existence of effects is necessitated by that of causes (A227/B299), an inference from actually existing effects can only establish the actual, not the necessary existence of their causes (A225-60/B273-4).

likes to describe as an "oblique" influence that changes the character of all of our subsequent reasoning about causal relations [T 104-5, cf., 146-50].

In more detail, once we have learned by experience that any given cause is usually accompanied by a number of superfluous circumstances, and once we have observed that, in all the cases where causes have apparently failed of their effects in the past, it was in fact only these superfluous circumstances that were present (leading us to mistake them for the true cause), we go on to formulate the general rule that, whenever causes appear to fail of their effects, it is because there was some noticeable circumstance that was present in all previous cases where the effect occurred, and absent this time, and that this noticeable circumstance is the true cause and never fails to be followed by the effect. And once this general rule has been formulated, even though it is admittedly formulated by induction, we never look in the same way on any specific instance of a failure of a cause to be followed by its effect. Whereas previously we might have "vulgarly" supposed that causes are only probably connected to their effects, now we believe that they are necessarily connected. Whenever a supposed cause fails of its effect, we take it as an indication that it could not be the true cause.

As a consequence, even though the general rule is inductive and so is itself not necessarily true, it leads us to treat all specific causal rules as statements of necessary connections. This is the "oblique" influence that Hume talks about. Kant at one point says something that might be taken to gesture at a criticism of this position.

[The concept of cause] would be merely empirical were it formed [by observing constant conjunctions], and the rule that it produces, that everything that happens has a cause, would be as contingent as the experience itself. Its universality and necessity would then be merely imputed, and would have no true, universal validity, because they would not be grounded on a priori considerations, but only on induction. [A195-96/B240-41]

At the risk of reading more into this text than Kant intended, his claim here—that were general rules based on induction they "would be as contingent as" the

experience that produces them—might be taken to imply that, were general rules themselves inductively based, they would have no more authority than our most recent experiences had lent to them, and would be just as open to falsification by subsequent experiments as more specific rules. Thus, striking a match that fails to light could be just as well taken to falsify the general rule that causes cannot fail of their effects as the specific rule that scratching match heads is followed by flame.

But if this is Kant's worry, Hume could respond that general rules are not formed in the naive way Kant seems to imagine. We do not see one cause always being followed by its effect, then see another cause always being followed by its effect, then a third, and so on, and so formulate the generalization that all causes are always followed by their effects. Rather, the general rule is formed after we first notice a number of instances of supposed causes failing to be followed by their effects and then notice, upon "an exact scrutiny" of subsequent cases of that type, that "a contrariety of effects always betrays a contrariety of causes" [T 132, repeated at EHU: 86- 87] —i.e., that in all such cases there is found to be some hidden cause that is constantly conjoined with the effect. In light of this experience, we come to associate experiences of the failure of a supposed cause to produce its effect with experiences of the discovery of hidden causes upon "exact scrutiny"—i.e., we formulate a higher or meta-level causal rule about causal relations themselves (a general rule). And this rule (where the "cause" is the failure of the supposed cause to occur and the "effect" is the discovery of a hidden cause upon more exact scrutiny), has in no way been falsified by the sole experience of the match failing to light. It would only be falsified if, in addition, the most exact scrutiny of subsequent, similar cases were not to turn up any hidden cause responsible, by its absence, for the failure of the match to light.

It of course remains possible for Hume that this might happen—that even the most exact scrutiny might fail to uncover any antecedent events that are constantly conjoined with a given type of effect. Thus, the general rule that same causes have same effects and same effects same causes remains an inductively established one

for Hume, and to this extent Kant's characterization of Hume's position is apt. But to be inductively established is still to be established, and Hume took it that the general rule is well established inductively—as far as he was concerned, the search for hidden causes to explain away apparent failures of cause-effect relations has been so successful that only those ignorant of the facts (the "vulgar") could persist in supposing that causes are only probabilistically connected to their effects.

Thus, for Hume, "philosophers" will in fact believe (as a consequence of experience) precisely what Kant insists we all must believe (as a condition of the possibility of experience): that the concept of cause contains the concept of a necessity of connection with an effect and of the strict universality of the rule that states that the events of the latter type always follow events of the former type.

Moreover, Hume takes this general rule to be relatively more immune to falsification than any specific causal generalizations. Specific rules are falsified by experiences of the failure of the rule to obtain; falsification of the general rule requires a further failure to discover hidden causes upon a more exact scrutiny. Thus, not only will Hume's "philosophers" believe in the necessity of the connection between causes and effects, they will react to contrary experiments in precisely the way Kant would insist we should react: by treating them as disconfirming instances and looking for alternative, hidden causes (engaging in a more "exact scrutiny" of the case), rather than by doubting the necessity of the connection and conducting a survey to determine how often it is likely to hold in a statistical sample of cases.

Thus, while Hume's rejection of random causal relations is admittedly contingent on continued success at finding hidden causes, in the absence of such an eventuality Kant's claim that the necessity of the connection between cause and effect would be "lost" were Hume's empiricist account accepted (as, for instance, at B5), or that it would be merely "fictive" is an overstatement. The most that Kant can say is that on his account we have an a priori assurance of the necessity of the causal relation rather than one that might be defeated by subsequent experience.

But whether our assurance is absolute and a priori or defeasible and empirical, what it is that we are assured of is the same necessity of connection.

Of course, if Kant did not know the *Treatise*, or did not know Hume's discussion of "oblique" influences, superfluous circumstances, and general rules in T I.iii.8, 12, and 13, then he might not have appreciated that Hume had these views; he might instead have supposed that Hume was a probabilist, who would take contrary experiments to be indicative, not of the falsity of a causal rule, but just of the frequency with which the connection between the true cause and its effect could be supposed to fail. Then there would indeed be reason for Kant to charge that Hume's approach failed to preserve the essential character of the concept of cause (or, at least, generated a very different concept of cause). For Kant would then have taken Hume's attack on the "dignity" [A91/B124] and "paternity" [*Prolegomena*, 4: 257-58] of causes to be an attempt to reduce them from necessary to merely probable antecedents of effects, and were that Hume's position it would have far-reaching implications for how we pick out causes and for the legitimacy of certain research practices (such as taking disconfirming experiments as indications of the operation of hidden causes). In this case, however, Kant's "reply" to Hume must be considered to be not so much a refutation of the real Hume as an alternative to him—a way of providing a priori foundations for a proposition Hume took to be equally well established empirically.

In order to better address some issues that will be raised below, it will be helpful to specify more precisely what Hume means by performing an exact scrutiny. It is possible for Hume to give a purely phenomenalist account of this notion, that is, an account that refers only to impressions, types of impressions, spatiotemporal manners of disposition of impressions, and ideas that copy impressions and their manners of disposition, and that makes no reference to objects that exist independently of being perceived or preserve identity over time.

Rightly or wrongly, Hume supposed that causes (i.e., impressions that constantly

happen first) are contiguous to their effects (i.e., impressions that constantly happen second) in space and immediately prior to them in time [T 51, 75-76, 173, 174-75] . He also took it that some of our impressions occur adjacently to one another in space [T 239-240], and that a number of adjacent, spatially disposed impressions are "capable of being at once present to the sight or feeling" [T 429]. This means that if I am to perform an exact scrutiny then, at a minimum, I must be perceiving the immediate neighborhood of an impression at the moment just before or after it occurs. If, at the prior or subsequent moment, my eyes are closed, or the lights are off, or my head is turned, or my senses of vision or touch are otherwise indisposed, then I should not expect to see the causes or effects of an impression. On the contrary, the general rule that causes must be contiguous and prior to effects assures me that whatever I experience under such circumstances could not be the cause or effect of the impression. How do I know that my eyes are closed or the lights are off or my sense organs are not properly positioned? By the fact that I am not seeing anything at all, or by the fact that the impression does not simply appear on my visual field or under my hands, but tracks in from beyond the periphery of the sensory field, or sits on the periphery, where I am only able to sense a part of its surroundings.

Matters are slightly more complex for impressions that are not localizable in space, such as passions, reflections, tastes, smells, or sounds [T 235-36]. We learn by experience that many of these impressions (those of taste, smell, and sound) constantly follow upon certain other types of impressions that do have locations in space [T 237]. For example fig tastes constantly follow upon placing figs in the mouth and particular sounds constantly follow those impressions that make up our perceptions of the motions or percussions of particular bodies. In these cases, performing an exact scrutiny will involve identifying the associated spatial impressions and attending to the neighborhood of those impressions at the immediately prior or subsequent moments.

Besides inspecting the immediate spatiotemporal neighborhood of a cause or effect,

performing an exact scrutiny will involve analyzing causes and effects. As noted above, these causes and effects are impressions, and many of them are compound impressions that consist of a number of other simple impressions. One analyzes them either by inspecting them as they appear in sensation, supposing that they last for long enough, or calling them up in memory, or procuring a series of impressions of the same type and inspecting them in succession. It is possible that only one of the types of simple impression that go to make up a given type of compound impression may be the true cause or effect while the others are only "superfluous circumstances." Isolating the true cause or effect requires performing controlled experiments, i.e., procuring a number of compound impressions that resemble one another in some, but not all of their simple parts, and determining whether the cause or effect is still conjoined with those other impressions [T 148, 174].

Finally, performing an exact scrutiny can involve inspecting the cause or effect more closely or under magnification. When a closer or magnified view is obtained, the previous impressions are destroyed, and replaced by entirely new ones. But since the new impressions result from moving closer or applying a magnifying instrument over the location of the remote impressions, the two sets of impressions are readily associated, and the close ones are thought of as previously hidden parts that can be revealed by performing these operations. However, because similar remote impressions are not always found to be associated with exactly similar close impressions, we learn that this inference is not always perfectly reliable. Accordingly, when the close impressions are difficult to obtain, and we must rely on the remote ones, we do not expect the usual antecedent or consequent impressions with the same degree of assurance. This is the foundation of all inferences concerning the probability of causes, and it is a consequence of the difficulty of obtaining close impressions that reveal the true, hidden causes, not of a belief that the remote impressions are causes that are only stochastically connected to their effects [T 132, 403-4; EHU 86-87].

This position on exact scrutiny and the earlier account of Hume's response to the inadequacy objection challenges Lewis White Beck's well known account of Kant's answer to Hume. Following Hume in T I.iii.3, Beck draws a distinction between the principles of "same cause same effect" and "every event some cause." Hume, Beck claims, was only able to account for how it is that experience leads us to believe that same causes have same effects. But he had no account to offer of how we come to believe that every event has some cause, though he did argue, in Treatise I.iii.3., that this belief is not intuitively obvious and cannot be demonstrated merely by analysis of the concept of an event. But, Beck charges, Hume needs to invoke the principle of "every event some cause" in order explain why we retain a belief in causal relations in the face of negative instances.

Of course, the kinds of negative instances Beck has in mind are not instances that reveal false causal hypothesis (both Kant and Hume would agree that if I hear a squeak while observing that the door remains closed, I ought to abandon any belief that the opening of that door caused the squeak). Rather, they are instances that arise because we were not attending or observing when the cause should have occurred. Beck refers to Hume's example of hearing the hinges squeak while one's back is turned, so that one does not see the door being opened [T 196]. As Beck would have it, such cases would lead the pure inductivist to say that the association between the sight and the sound is weaker than it had been, and that the probability of the causal judgment less than it had been. He might even deny that the noise had a cause. Neither Hume nor the common man will draw such a conclusion. Both claim that had they been looking, they would have seen the door open. Why? Because they believe that every event has some cause even if the preceding impression is not the same [Beck, 1978, 125].

And "a priori is as a priori does," Beck concludes (126). Since Hume accepts "every event some cause" even in the face of contrary experience and without having any account of how past observations could have led us to accept it as a general rule, he is in fact treating it as valid a priori. But Beck's attack on Hume can be faulted for

the same reason that Kant's attack on empiricism at A195-96/B240-41 can be faulted: it fails to appreciate the role that attention and "exact scrutiny" play in causal reasoning. A cause is not simply the thing that is always observed to happen prior to its effect. It is the thing that is shown by an exact scrutiny to always happen prior to the effect. And performing the experiment with one's back turned hardly counts as making an exact scrutiny. The requirement for exact scrutiny is moreover not one that Hume simply assumes a priori. It is something that is taught to us by repeated experience of the fact that beliefs formed on the basis of an exact scrutiny are more reliable than those formed on the basis of what might be called "Beckian pure inductivism." And if, not just "philosophers," but even "the common man" agree with Hume about this, it is because it is unlikely that the common adult could have escaped taking that much instruction from experience. (The same could not confidently be said of the common infant.)

Beck's account can be faulted on a related score: it fails to pay due regard to the context of Hume's discussion of the case of the squeak and the door hinges. That context is T I.iv.2, "Of Scepticism with Regard to the Senses," where Hume examines our belief in the continued existence of unperceived objects, not T I.iii, where his examination of reasoning from effect to cause takes place. In T I.iv.2 Hume is not concerned with whether the "pure inductivist" would have any difficulties getting a belief in the immediate prior existence of door hinges upon receiving the impression of a squeak. He is concerned with how the pure inductivist would go on to form the further beliefs that these hinges are the very same ones that were seen to be attached to the door to the room a few moments before, and that they continued in uninterrupted existence over the time since that past impression. At T: 197 Hume makes this very clear. But tho' this conclusion from the coherence of appearances may seem to be of the same nature with our reasonings concerning causes and effects; as being deriv'd from custom, and regulated by past experience; we shall find upon examination, that they are at the bottom considerably different from each other, and that this inference arises from the understanding, and from

custom in an indirect and oblique manner.

Inferring unperceived effects from perceived causes or unperceived causes from perceived effects is one thing, Hume is saying, inferring the continued, uninterrupted existence of these effects or causes and their identity with past impressions is "at bottom considerably different." Hume's problem with the case of the squeak and the door hinges is that the account of causal inference of T I.iii is adequate to license the first inference, but not the second, which goes beyond the evidence of past experience.

since nothing is ever really present to the mind, besides its own perceptions, 'tis not only impossible, that any habit shou'd ever be acquir'd otherwise than by the regular succession of these perceptions, but also that any habit shou'd ever exceed that degree of regularity. Any degree, therefore, of regularity in our perceptions, can never be a foundation for us to infer a greater degree of regularity in some objects, which are not perceiv'd; since this supposes a contradiction, viz. a habit acquir'd by what was never present to the mind. But 'tis evident, that whenever we infer the continu'd existence of the objects of sense from their coherence, and the frequency of their union, 'tis in order to bestow on the objects a greater regularity than what is observ'd in our mere perceptions. [T 197]

Unfortunately, in the process of making this point, Hume's governing inclination to propound skeptical paradoxes, and establish that it is only through the most trivial and inconstant functions of the imagination that we get any conviction of the existence of unperceived objects, drives him to go over the top in his reasoning, and make claims that appear to question even our conclusions from causes and effects. Thus, at T: 196-97 he writes:

To consider these phenomena [of the squeak and the hinges] in a certain light, they are contradictions to common experience, and may be regarded as objections to those maxims, which we form concerning the connexions of causes and effects. I am accusom'd to hear such a sound, and see such an object in motion at the same time. I have not reciev'd in this particular instance both these perceptions. These observations are contrary, unless I suppose that the door still remains, and that it was open'd without my perceiving it: And this supposition, which was at first entirely arbitrary and hypothetical, acquires a force and evidence by its being the only one, upon which I can reconcile these contradictions.

While it is true that my impression of the squeak does lead me to suppose that

there are hinges and a door that was just opened, it is quite misleading of Hume to say that I must "suppose" that the door "still remains" in order to render my experience consistent. For, in the first place, even if I were to make a "supposition," it would not be that the door "remains," but rather that a pair of hinges (not necessarily the same ones that I saw before) is or was at the moment just before I heard the squeak. Causal reasoning licenses me to infer the existence of an unperceived cause at the moment just prior to the effect, not at any earlier or later moment, and it only licenses me to infer that This cause is an event of the same kind that has been constantly observed to precede that sort of effect in the past, not to assume its identity with any past cause.

Moreover, in the second place, this inference is not a "supposition" that I make in order to render my current experience consistent with my past experience, and it is far from being "arbitrary." It is a suggestion that my past experience, in virtue of the natural belief forming mechanisms of custom, association, and the transmission of vivacity from present impressions or memories to associated ideas directly induces me to accept.

having found, in many instances, that any two kinds of objects—flame and heat, snow and cold—have always been conjoined together; if flame or snow be presented anew to the senses [but at a distance where the heat or cold is not felt], the mind is carried by custom to expect heat or cold, and to believe that such a quality does exist, and will discover itself upon a nearer approach. This belief is the necessary result of placing the mind in such circumstances [not an arbitrary supposition]. It is an operation of the soul, when we are so situated, as unavoidable as to feel the passion of love, when we receive benefits; or hatred, when we meet with injuries. [EHU: 46]

And, we might add, it is not an invention that I am led to make out of a purely logical concern to render my present experience consistent with the past.

Far from constituting evidence that would lead a "pure inductivist to say that the association between the sight and the sound is weaker than it had been," my not observing the hinges is typical of what Hume calls causal reasoning. All causal reasoning involves the inference of an unperceived cause or effect from a given impression [T 87]. After all, if both the moving hinges and the squeak were given in

sensory experience, an inference from the one to the other would be unnecessary, as I would already perceive them both [T 73]. Hume's whole point about causal reasoning is that it is supposed to be what takes us beyond our senses and memory, to "people the world" [T 108] with objects that we are not now seeing and do not remember. Accordingly, all of his paradigm examples of causal inferences—of seeing fire and inferring that heat will be felt upon approach [EHU 46], of hearing an articulate voice and rational discourse in the dark and inferring that some person is present [EHU 27], of finding a watch or a machine or the remains of pompous buildings in a desert and inferring that people were once there [EHU 26, 45] —are cases of the same sort as the case of the squeak and the hinges. They are cases where only one member of the cause/effect pair is given and the other is presently unperceived, but inferred. Hume could not suddenly deny that custom and habit are adequate to lead the "pure inductivist" to accept such inferences without abrogating his entire account of causal inference in T I.iii and EHU II-VIII.

Thus, when Hume writes at T: 198 that

as all reasoning concerning matters of fact arises only from custom, and custom can only be the effect of repeated perceptions, the extending of custom and reasoning beyond the perceptions can never be the direct and natural effect of the constant repetition and connexion,

he contradicts himself. T I.iii has proven that "the extending of custom and reasoning beyond the perceptions," i.e., the development of a habit to form a lively idea of the absent member of the pair, is "the direct and natural effect of repetition and connexion," and causal reasoning serves no other purpose than to "people the world, and bring us acquainted with such existences, as by their removal in time and place, lie beyond the reach of the senses and memory [T 108].

Of course, the license that causal reasoning gives me to infer unseen causes from given effects is one that only applies when I am not in the right place at the right time to make the observation. If I was in the right place at the right time, was exercising due attention, and still failed to make the observation, then, far from

being entitled to go ahead and assume the existence of the cause anyway, I would have witnessed a disconfirming instance. In that case, my past experience would indeed have been contradicted and I would indeed have discovered "an objection to those maxims, which we form concerning causes and effects." But in that case, we would also think that I ought to reject my causal maxim. And Hume would agree. Seeing the hinges remain immobile while hearing the squeak supplies me with an impression that contradicts the idea causal inference would otherwise suggest, and is a convincing proof that the hinges could not be the cause of the squeak.

Beck is wrong, therefore, to suggest that T I.iv.2 shows Hume to be tacitly committed to the a priori validity of the principle that every event must have some cause. The past experience of a constant conjunction is all that Hume needs to explain why we believe that moving hinges existed at the instant before we heard the squeak, and any claims Hume might make about the inadequacy of custom and habit to convince us of the unperceived existence of the hinges are either excessive, or focused on the subtly different questions of identity and endurance, not those of momentary prior existence.

Kant's charge that Hume's empiricist account is inadequate cannot be dismissed without considering the Second Analogy, as it is frequently maintained that its proof of the principle that every event must have some cause demonstrates the untenability of Hume's account of causality.¹⁴

14 See, for instance, Guyer, 1987, 237–38; Allison, 1983, 228, and Beck, 1978, 135. Hume's name is not once mentioned over the text's 20 pages, and though there is one paragraph where Kant contrasts his position with empiricist accounts of causality in general,

It admittedly appears as if this [account of causality] would contradict all the observations that have yet been made about the operation of our understanding. According to these observations, it is only through perceiving and comparing many events with preceding appearances to note a constant conjunction between them that we are first led to discover a rule that tells us that certain events always follow certain appearances, and so are first induced to form the concept of cause. [A1950B240–41]

it would seem to indicate that Kant's objection is not to the thesis that we are led by an observation of a constant conjunction between events to formulate a particular causal rule, but just to the notion that our concept of cause first originates through this

The "every event some cause" principle had only a derivative and minor role to play in Hume's philosophy. Though he admitted that, "It is universally allowed that nothing exists without a cause of its existence, and that chance, when strictly examined, is a mere negative word" [EHU 95], he denied that (intellectual) intuition or (rational) demonstration could establish that at every "beginning of existence" must have some cause, and declared that "there is no absolute nor metaphysical necessity that every beginning of existence should be attended with such an object" [T 172]. He seems to have taken this principle to instead be established by the discovery that everything that we take to be a chance occurrence has turned out upon more exact scrutiny to have some cause, and so to have taken it to be just another one of the causal rules established by an experience of constant conjunctions. The only time he makes any explicit use of it is in his discussion of liberty and human action [EHU 95].

Kant's position is very different. While there is no real consensus among scholars on how his argument in the Second Analogy is best interpreted, many have maintained that it establishes that we cannot take something to be a "beginning of existence" without presupposing that it has some cause, even in advance of any experience of this cause, and have charged that this does not just undermine Hume's incidental position on the "every event, some cause" principle, but his entire account of causality. For, so the attack goes, the basis that Hume's account takes off from is the supposition that we experience a constant conjunction—between events. Hume, it is charged, simply assumed that we are able to identify events, and relations of constant conjunction between resembling events, without considering how this is possible. By showing that, far from obtaining the concept of cause from an observation of a constant conjunction between types of events, we

procedure. This point is underscored by the parallel treatment the argument receives in the Prolegomena, where Kant only asserts that he is out to "remove Hume's doubt about the ability of reason to have insight into the possibility of the concept of cause (310: 21–24), i.e., to answer the negative attack on the ability of reason to supply us with the concept of cause launched in *Enquiry* IV and VII.i, not to attack the positive account of *Enquiry* V and VII.ii.

are only first enabled to identify events through presupposing the concept of cause, Kant turned the tables on Hume.¹⁵

Assessing the justice of this charge requires a closer look at how the argument of the Second Analogy works. The most widely-cited recent interpretations of this argument, those of Allison (1983, 216-232) and Guyer (1987, 237-259), draw heavily on the notion that for Kant experience does not come to us already temporally determined, but only acquires temporal relations through being subsumed under causal rules. On this account, the argument of the Second Analogy is grounded in the unexpressed, but nonetheless fundamental Wittgensteinian supposition that we have no direct access to our inner states, backed up by the Augustinian thesis that all apprehension takes place in the solipsism of the present moment. The Second Analogy is supposed to show that even the order we imagine our perceptions to have in our subjective stream of consciousness is itself the product of a synthesis in accord with that concept.

what has to be emphasized is Kant's fundamental and synthetic claim that in any situation in which we seem to recall being successively conscious of two states of affairs... it is not actually given which is the present perception and which is the prior one. For all that can be given in one moment is a present representation of the contents of two (or more) possible perceptions, but not both the present and the past representation itself. Which is the present representation and which the past is something [that] itself must be judged...

In other words, the ultimate premise of Kant's argument is not actually mentioned in his exposition of the second analogy itself, but is nothing other than... that we are never at one moment in an epistemically qualified position to judge that a sequence of representations at earlier moments has occurred merely by virtue of the fact of the earlier occurrence of those representations itself; rather we must interpret the content of what is always just our present representational state as representing such a sequence of earlier representations. [Guyer , 1987, 254-55]

If we are to understand the problem that concerns Kant in the Analogies we must first reject the assumption that the subjective order is a datum or bit of evidence from which we must somehow make inferences about an objective order... . [The subjective "order" is] an indeterminate preconceptualized material for sensible

¹⁵ Beck, 1978, 135, contains the classic formulation of this version of Kant's answer to Hume.

representation... . Thus, what Kant is trying to say here is that if all we had were this indeterminate subjective order, we would not be able to represent any temporal order at all (whether objective or "subjective"). [Allison, 1983, 218]

Starting from this "ultimate" but "not actually mentioned" premise, the Second Analogy is supposed to show that, simply because (as the second paragraph of the B edition proof felicitously puts it) "our imaginations set" one perception, B, after a different one, A, we cannot infer that B is the perception of a "beginning of existence" that only first occurred after A. To reach this conclusion, and establish that what we perceived was indeed an event, we have to presume that this case falls under a causal law.

In slightly more detail, the argument is supposed to begin by telling us that there is nothing in either A or B, analyze them as closely as we will, that could tell us where they properly belong in time. The argument is then supposed to go on to tell us that the bare fact that we appear to ourselves to have had B after A in our subjective stream of consciousness is itself an inference, or rather, the product of a synthetic procedure of the imagination, and that simply because our imaginations did set B after A, it does not follow that they had to do so, and that they could not just as well have presented B before A. If we are to think that we perceived an event, then we have to think that the procedure of the imagination was bound down, so that B had to be presented after A. But since there is nothing either in A or B or in the manner of their perception (which is already a product of the imagination) that could do this, we have no choice but to inject this missing premise ourselves.

And to do this, it is claimed, is to impose a causal rule on our experience—a rule that stipulates that certain events must always follow certain other events, and can never precede them, and that therefore our perceptions of those events must be accordingly ordered by the imagination. As Guyer (1987) puts it,

Kant's idea is that no alternative remains but that the occurrence of an event be inferred by adding... a rule from which it can be inferred that in the circumstances at

hand one state of affairs could only succeed the other.... Only from a rule which says that one of the represented states must succeed the other can it be inferred that it does succeed the other. For the temporal positions of the objective states themselves are not directly given, and though their succession could be inferred from the necessary sequence or irreversibility of the representations of them if such irreversibility were [directly given]...the necessity of the sequence of representations is also not directly given to consciousness. So nothing remains but to invoke a rule from which it follows that one objective state can only succeed and not coexist with the other [248]

But when the Second Analogy is understood in this way it leaves a puzzling question unanswered: if there is nothing in A or B or in the manner of my intuition of the two of them together that determines their temporal order prior to the application of a causal rule, then what determines that I should apply one causal rule in preference to another? And supposing that I have once applied a rule, what could ever convince me that I was mistaken? How can we account for the observation that we do, as a matter of fact, occasionally revise our causal hypotheses? Why should I add or invoke a rule that places "striking match" before "ignited match" rather than the reverse? And why should I think that I would be wrong were I to invoke the reverse? It will not do to reply that I invoke the rule this way because I never experience a perception of "ignited match" before a perception of "striking match," or that I do not invoke the opposite rule because I do experience countless opposed cases of perceptions of striking matches before perceiving ignited matches. For, on this account of the argument, the temporal order of my perceptions is itself only the result of my choice to apply this particular rule in preference to that one, rather than a previously given datum of inner sense intuition that guides me in my choice of which rule to apply.

By similar argument, why should I add or invoke a rule that places driftwood upstream before driftwood downstream, but not roof of house before foundation of house? Again, it will not do to reply that I only ever perceive driftwood downstream after driftwood upstream, but that I may perceive the roof and the foundations in any order, for on this account it is my choice of the rule that determines the order of these "indeterminate preconceptualized materials," not the order in which these materials occur in inner sense that determines my choice of

the rule.

Guyer (1987, 258-59) is aware of this problem. His answer to it is to draw a distinction between the context of justification and the context of discovery, and claim that all that the Second Analogy is concerned to do is make a point about what is required to justify the supposition that an event has occurred, not to explain how we set about discovering the causal laws that go into offering this justification.

But an account of justification that implies that causal rules cannot be discovered, or that implies only unacceptable theories of discovery, cannot be adequate. And that is the case here. If causal rules are discovered, they must be discovered either a posteriori, through some reference to experience, or completely a priori. If they are discovered a posteriori, it must be through some reference to either the matter or the form of experience. But Kant is quite explicit in denying that we can discover anything in the matter of experience that tells us which is cause and which effect, or which occurs earlier and which later. If, in addition, it is maintained that we have no direct intuition of the temporal order in which our perceptions of these matters occur, then we are forced to conclude that causal laws must be known completely a priori.

Even had Kant not denied this result (as he did at B2, B165 and A766/B794), it is unacceptable. If experience does not guide our choice of causal laws, either in virtue of its matter or its form, then there remain only two alternatives: either these laws would have to be one and all derived by top-down deduction from fundamental metaphysical principles, or they would have to be recognized to be completely arbitrary, and made up as we go along. The second alternative is a version of the Garve-Feder interpretation of the *Critique* as a system of "higher Idealism," and Kant himself repudiated it; the first may have been a project that Kant attempted in his later years, but it is one that he failed to achieve, and one that could not reflect how we actually come to know causes, even had he achieved it. As Hume pointed out in the *Enquiry*,

When a child has felt the sensation of pain from touching the flame of a candle, he will be careful not to put his hand near any candle; but will expect a similar effect from a cause which is similar in its sensible qualities and appearance. If you assert, therefore, that the understanding of the child is led into this conclusion by any process of argument or ratiocination, I may justly require you to produce that argument. ...if, after reflection, you produce any intricate or profound argument, you, in a manner, give up the question, and confess that it is not reasoning which engages us to... expect similar effects from causes which are, to appearances, similar . [EHU 39]

Responding to this charge by claiming that the argument of the Second Exposition has to do with justification and not discovery will not help. For, to grant Hume's point, that "discovery" of causes is based on observation of a frequent conjunction between perceptions, is to deny what is supposed to be the "ultimate" though "not actually mentioned premise" of the Second Exposition, that there is no temporal order to our perceptions prior to an application of causal concepts; whereas to insist on this "ultimate premise" is to court the objection Hume raises here: that only those able to deduce specific causal rules from metaphysical principles will be able to discover that fire burns, something that should put this causal inference not only beyond the reach of children, but of Kant himself.¹⁶

In light of this result, it is natural to wonder whether the current account of the Second Analogy might be wrong in its insistence that Kant did not take the temporal order of our perceptions to be directly intuited. But if, just as event perception is not possible without presupposing the concept of cause, so the application of the concept of cause presupposes a prior intuition of a temporal order in which our perceptions occur, then the tables are turned once again. For this prior temporal order of perceptions is something that Hume has as much right to claim access to as does Kant. At the phenomenal level of discourse that Hume's analysis of causal reasoning is carried out at, we do not, in fact, begin by noting that "among events, we find empirically some pairs of similar ones [that] tend to be

16 Guyer, 1987, 259, tries to get around this result by claiming that specific causal laws may be justified by observed regularities in the sequence of perceptions, as Hume claimed, as long as these regularities are in turn derived from some other causal law. But this either generates an infinite regress, if the other causes are taken to be earlier or more remote ones, or the "gap" problem just discussed, if the other causes are taken to be higher laws and metaphysical principles.

repeated, and we then make the inductive judgment: events like the first members of the pairs are causes of events like the second," as Beck (1978, 135) has claimed; we begin by noting that among impressions there are some pairs of similar ones that tend, upon exact scrutiny, to be repeated, and we then make the inductive judgment that impressions like the second are effects, and hence are what Kant would want to call representations of events, and those like the first are their causes. Here, too, "event" perception depends on a prior determination of cause-effect relations, but these relations are discovered by regularities in the primitive temporal sequence of our impressions.

Admittedly, as Hume himself recognizes, the turning of my head or the closing of my eyes can interrupt these regularities [T 198]. But Hume does not have to tacitly invoke a priori concepts of substance and cause in order to deal with this problem. He has his own, empiricist account of how the experience of resemblances, coupled with certain tendencies of the imagination, can generate the notion of identity a posteriori. And since, as he stresses, this account is quite independent of and even in certain respects contrary to our reasoning from causes to effects or effects to causes [T 197-98, 216], there can be no question of any circularity in it.

But even were this empirically based account of identity inadequate for the job of discriminating cases of alteration in objects from those of alteration due to such cases as that of the turning of my head, there is a second resource Hume can invoke to resolve questions of how to apply the concept of cause: the notion of exact scrutiny. For Hume, causes must be contiguous with and prior to their effects, and this is precisely the feature that is lacking in cases where the change in our impressions is brought about by such things as turning our heads or closing our eyes. Moreover, contiguity and priority relations can be determined by direct perception. Hume takes space to be a manner of disposition of my impressions. I simultaneously experience many impressions to be disposed alongside one another in space (T I.ii.3; T 239-40; T 429), and I can therefore directly see whether one impression has simply emerged in the immediately contiguous neighborhood of

another or has instead tracked onto my sensory field from outside its periphery.

The same holds for my perceptions of succession and priority in time. Whatever prejudices may be attributed (I think questionably) to Kant, Hume was not someone who supposed that apprehension occurs only in the solipsism of the present moment, where the past is represented in the present. For Hume, impressions actually occur after one another in time, the ideas that copy those impressions do so by consisting of a number of parts that are similarly disposed in time, and the mind that apprehends the whole is nothing other than the bundle of these temporally disposed impressions and ideas [T 36-37]. Hume's position is not adequate in light of Kant's, therefore. Neither account can do away with an appeal to an originally intuited temporal order in which impressions or perceptions are seen to occur, and neither is without resources for distinguishing between perceptions of events and perceptions of merely subjective alterations in perception. Where Kant appeals to an a priori concept of cause, Hume can appeal to the notion of exact scrutiny and to the more "trivial" functions of the imagination inducing our attributions of identity. Indeed, when one considers the detailed account Hume provided of the conditions under which our idea of identity is formed in T I.iv.2, and the even more detailed account of how our ideas of cause and effect are first naively formulated and then corrected in T I.iii.8–13, and if one then compares those discussions with Kant's few, scattered, underdeveloped references to resemblance (or action) as the "empirical criterion" for the application of the concept of substance (A362, A204/B239), or sequence in time as the empirical criterion for cause and effect (A203/B249), it is hard not to conclude that Hume has done a more adequate job than Kant.

Though it does not come out as clearly at B5 as it might, Kant's usual charge against Hume is not that the empiricist approach is inadequate to provide for the necessity of the connection between causes and their effects. His usual way of stating his objection is rather to claim that the empirical approach can establish a necessary connection, but only by taking it to be merely subjective [Prolegomena 4: 256-57,

310-11; B5, B127]. According to this strand of criticism Kant does not so much accuse Hume of taking the necessity of the connection between cause and effect to be ultimately contingent as he accuses him of being a necessitarian of the wrong kind.

This may seem a somewhat strange criticism for Kant to level against Hume. After all, Kant described his own answer to "Hume's problem" as resting on an appeal to the constitution of the understanding, which sets conditions on the nature of an object of possible experience in general and thereby allows us to make synthetic a priori claims about objects [A196/B241, A764-65/B792-93, *Prolegomena* 4: 260]. Indeed, one might want to say that this is an issue where Kant and Hume stand on the same side, at least insofar as they both oppose the "objectivist" power and excretion models, which would read necessitation into the causes themselves as a faculty they possess for bringing effects about.

Not surprisingly, therefore, on at least one occasion when Kant charges his empiricist predecessors with ascribing a "merely subjective" necessity to the connection between causes and effects, he ends up making a criticism that cuts as much against his own position as against Hume's. The "dignity" of the notion of a cause demands, he says on this occasion, "that the effect should not merely come after its cause, but be posited through it and follow out of it." Either this was not intended as it sounds (which is hard to imagine given the emphasis and nature of the contrast), or Kant's attempt to state an objective/subjective contrast backfired and led him to misstate his own position. A243/B301 (which states that, insofar as the concept of cause is meaningful for us, it stands for rule-governed succession, not the operation of a power) contradicts this pronouncement and, while the Second Analogy is a difficult text, one thing it emphatically does not prove is that causes must contain at least as much "reality" as their effects and, as it were, excrete them out of their own substance, or that causes are powers that make their effects happen. The kind of cause that the Second Analogy seeks to establish is thought as preceding in time in accord with a rule—as being the event that is always followed

by the effect, not as being the agent that brings the effect about. And this is not something that at all differentiates Kant's position from Hume's.

If anything, Hume is less "subjective" in his account of necessity than Kant. Though Hume takes it that the subject is so constituted as to form a very vivacious idea of an associated object on those occasions when it receives an impression of its usual attendant, this subjective component of his account only serves to explain how our nature induces us to believe in the past existence of a cause, upon witnessing its effect, or in the impending existence of the effect, upon witnessing its cause. It does not directly explain how we come to view the connection between cause and effect as one that must hold necessarily, and not merely probabilistically, so that a single instance of the effect failing to follow the cause (upon exact scrutiny) would falsify a causal hypothesis. For Hume, it is experience that teaches us to be necessitarians rather than probabilists about the causal relation, and our subjective constitution has only an indirect and ancillary role to play in generating this result. However, our subjective constitution does have a larger role to play in Hume's account of how we have extravagantly come to believe in necessitating forces or powers in causes that serve to make their effects happen. For Hume, the subject is so constituted as to feel a customary transition in itself on those occasions when it has a type of sensory experience that has in the past been regularly preceded or followed by another type of experience. And Hume takes it that the subject then goes on to mistakenly confuse this subjective sense of transition with a property of the cause—a power to bring the effect about.¹⁷ But the necessity that we attribute to

17 Indeed, in the *Enquiry*, one must be a very careful reader to notice that Hume attributes the necessary connection to the objects even by confusion, as this observation occurs only in the concluding sentence of a two-paragraph long footnote (77–78 n.). The main text of the *Enquiry* declares that our idea of necessary connection is drawn from “something extraneous and foreign” (76) or “circumstances foreign” (77) to anything we can discern in the events themselves—to wit, a feeling we discover in ourselves. It is only in the *Treatise* that Hume candidly confesses “that of all the paradoxes, which I have had, or shall hereafter have occasion to advance in the course of this treatise, the present one [that necessary connection is a feeling in the subject rather than a feature of the objects] is the most violent” (166). He then tries to explain why we have so generally held a different view (167), referring to T.I.v.5 where the “illusion” is accounted for as grounded in a strong propensity to add some new and purely speculative relation ~local conjunction! to

observed, repeated conjunctions is not a similarly subjective notion that has been mistakenly injected into the objective world. It is a discovery we make about the world based on the character of our experience.

For Kant, in contrast, the idea that certain perceived conjunctions between our experiences are not merely accidentally, but necessarily successive is one that, as he puts it at A194-95/B239-240, we are the authors of and we inject into nature. Indeed, if one accepts the current account of the Second Analogy, it is not merely the necessity but even the successiveness that is so injected. But, on any account of the Second Analogy, the subject's contribution has the status of a condition that must be satisfied for us to be able to experience objects. This condition cannot be supposed to govern these objects as they are in themselves, but since it does govern the possibility of our experience of objects, and since Kant takes the conditions of the possibility of our experience of objects to likewise be conditions of the possibility of these objects, considered as appearances, the condition ends up having "objective" status (for the world insofar as it appears to us).

Thus, Kant considered that the subject's contribution is warranted, whereas Hume considered at least a part of its contribution to involve a mistake, resulting from an imaginary confusion of two distinct, though constantly coincident things. But this still does not mean that there is any real disagreement between Kant and Hume here, because the subjective contributions the two have in mind are not the same. Kant is talking about the subject's imputation of necessity to the connection between causes and effects; Hume is talking about the subject's imputation of a force or power to causes to bring their effects about. Hume agrees with Kant that there are grounds for our belief in the necessity of the connection between causes and effects; he just does not think that they are a priori. And Kant agrees with Hume that we have no clear notions of powers or forces in causes to bring effects

complete the union of things ~like a felt transition of the mind and an observed regularity in objects! that have already been observed to be united by another relation ~constant conjunction!—a propensity that, however, results in a notion that is “altogether unintelligible and contradictory” (236–38).

about A91/B124 notwithstanding); he just does not think that these notions arise from confusion of subjective feeling with an objective property (if he has any account of where they come from it is probably that they are contained in the unschematized category of cause as notions that are so general and vague that we can make no theoretical use of them).

Thus, Kant's attempt to charge Hume with being a necessitarian of the wrong kind aims so wide of the mark that it does not even come close to touching its target. Kant and Hume share the same, basic conception of causality. Both reject the power and excretion models, according to which causes make their effects happen or draw them out of themselves. Both hold instead that causes are merely events that are constantly conjoined with or followed by certain other events. And both insist that this conjunction or succession must be constant or "in accord with a rule," though Hume did recognize a "vulgar" conception of causality that is probabilistic, and Kant's description of causes as types of events that are "followed in accord with a rule," suggests that he may have accepted only the "same cause, same effect" principle, and not also the "same effect, same cause" principle. Kant and Hume do differ in their accounts of what leads us to or warrants us in supposing that the connection between causes and effects is necessary. Hume takes us to have been led to this belief by the associative tendencies of the mind, activated by an experience of a constant conjunction between the failure of supposed causes to precede or be followed by their effects, and the discovery of hidden causes upon a more exact scrutiny. Kant takes it that a causal rule must be presumed as a condition of distinguishing between objective changes in experience, due to the occurrence of an event, and merely subjective changes, such as those arising from the turning of my head or the closing of my eyes.

But Kant's attempts to show that Hume's account is either inadequate, or adequate only to establish a merely subjective sense of necessity are failures, and his attempt to demonstrate the "every event some cause" principle in the Second Analogy does not turn the tables on Hume, as many commentators have supposed. Though the

Second analogy argues that an application of the concept of cause is a necessary condition of event perception, Hume's account of causality does not take off from the assumption that we observe a constant conjunction between events, but on ly from the assumption that we observe a constant conjunction between impressions. Hume can therefore reply that just as an application of the concept of cause is necessary for the perception of events, so an observation of a regularity in the succession of resembling impressions is necessary for the application of the concept of cause. This is not an observation Kant could deny without abandoning the commitment to empirical guidedness in the discovery of causal rules expressed by B2, B165 and A766/B794, and embracing either a form of "higher idealism" or a hyper-rationalistic, top-down metaphysics of nature.

Far from being concerned to deny intuitive awareness of a temporal order of perceptions in the Second Analogy, Kant wrote in such a way as to convey the opposite impression. And rather than present his argument as an attack on Hume's claim that observation of constant conjunctions between perceptions leads us to judge that causal connections obtain, he may even have been willing to accept that such observation guides us in deciding what causal rules to apply. His major concern seems to instead have been to insist that the causal rules we do decide to apply take the form of descriptions of necessary conjunctions between types of objects rather than contingent conjunctions between types of perceptions. He took it that even if the latter might be taught to us by experience, the crucial point is that the former can never originate from that source but must be postulated by us. Because the former deals with objects of perception rather than perceptions themselves, it can be invoked even in the face of recalcitrant perceptual experience. Consequently only it, Kant supposed, can preserve the coherence of our experience in the face of the sorts of failures of expectations th at arise from closing our eyes or turning our heads or otherwise misdirecting our senses.

2.3 Scientific Framework for the Reconstruction of Metaphysics: Newton

Newton's name is as inextricably connected with Kant's theory of science as is Euclid's. Usually we are told that Kant began with a belief in the validity of Newtonian physics.¹⁸ But "Hume's skeptical attack on the validity of causal inference— and thereby on the possibility of all empirical knowledge" [Wolff 1969: 25]—made a philosophical defense of Newton's theory necessary. What had to be done was to show that, in spite of Hume, causal inference is valid. Indeed, Kant did just this, and a great deal more besides. He showed that Newtonian physics can be derived from certain unquestionable premises having to do with the fact of consciousness.¹⁹ In this way, Kant secured Newton's theory against all possible objections, by giving it a firm metaphysical foundation. For ". . . it is a consequence of Kant's metaphysics of experience that Newton's theory is valid." [Stegmüller 1967: 15]

The argument is often turned around. Since Newton's theory has been shown, first by the theory of relativity and then by quantum mechanics, to be invalid, and since it is a consequence of Kant's metaphysics, there must be something wrong with the metaphysics. Friendly critics want to say that Kant's position must be placed in historical perspective.²⁰ Kant succeeded in isolating the underlying assumptions of Newton's theory. It is sometimes added, indeed, that this is all a philosopher can and should do: elaborate the presuppositions of particular theories. More hostile critics contend that the whole enterprise is mistaken if we think of these

18 Kemp Smith 1984, p. v: "Newton, he believes, has determined in a quite final manner the principles, methods and limits of scientific investigation."

19 Lewis White Beck: "The Critique of Pure Reason . . . does not assume science and mathematics but rather establishes, by a general epistemological inquiry, principles from which they may be derived." Introduction to Beck's translation of the *Prolegomena* (New York: Liberal Arts Press, 1950), p. xvii, note.

20 R. G. Collingwood: "The truth is that the Transcendental Analytic is an historical study of the absolute presuppositions generally recognized in Kant's own time and as a matter of fact for some time afterwards. . . . Some of these go back to Galileo. Some of them are today fallen into desuetude. If the unity of the whole constellation is insisted upon, there is nothing for it but to say that it forms a set of absolute presuppositions not actually made as a whole until Kant's lifetime, which lasted for about a century after he formulated it." *An Essay on Metaphysics*, p. 245.

assumptions or presuppositions, even with respect to individual theories, as synthetic a priori propositions. There just are not any synthetic a priori propositions, as the overthrow of Newtonian physics should lead us to realize. If any propositions are presupposed, in the sense that they are not subject to empirical verification or falsification, then these propositions are analytic, for example, the propositions of logic and mathematics.

There are a great many issues mixed together here. The discussion is organized around four topics; the nature of Hume's challenge, Kant's response to the challenge, the bearing of the challenge on physics, and the relations between Kant's theory and Newton's. What did Kant take Hume's challenge to be? In the first place, he took it to be a challenge not to physics but to metaphysics. As he says, for example, in the *Prolegomena*:

Since the Essays of Locke and Leibniz or rather since the rise of metaphysics as far as the history of it reaches, no event has occurred that could have been more decisive with respect to the fate of this science than the attack made upon it by David Hume. [*Prolegomena*, 4: 257]

In refuting Hume, Kant hopes to save metaphysics. For Hume's objection can be generalized. ". . . the concept of the connection of cause and effect is by no means the only one by which connections between things are thought a priori by the understanding; indeed . . . , metaphysics consists of nothing else whatever." [Ibid.] If Hume's argument is sound, there simply is no such thing as metaphysics.

One of the difficulties for the claim that Kant's project is to provide metaphysical foundations for Newtonian science, and thereby prove its validity, is that Kant himself never characterizes it in that way. Far from guaranteeing physics from skeptical attack, the task is to say how metaphysics can become, like physics, a science. This is Kant's project, as the full title of the *Prolegomena* makes clear. The emphasis is particularly strong in the two prefaces to the *Critique of Pure Reason*. In the first, he says:

We often hear complaints of shallowness of thought in our age and of the consequent decline of sound science. But I do not see that the sciences which rest upon a secure foundation, such as mathematics, physics, etc., in the least deserve this reproach. On the contrary, they merit their old reputation for solidity, and, in the case of physics, even surpass it,

and adds immediately that a critique of pure reason is needed to decide “as to the possibility or impossibility of metaphysics in general, and determine its sources, its extent, and its limits—all in accordance with principles” [A xii].

In the second preface it is urged that

Metaphysics . . . though it is older than all other sciences, and would survive (i.e., as a 'natural disposition,' not as a science) even if all the rest were swallowed up in the abyss of an all-destroying barbarism, it has not yet had the good fortune to enter upon the secure path of a science" [B xiv].

Now how did Kant think Hume's argument challenged metaphysics? Roughly as follows. Hume showed that it is never self-contradictory to affirm the antecedent and deny the consequent of particular causal judgments.²¹ In Other words, using Kant's terms not Hume's, causal judgments are synthetic. Take any traditional metaphysical principle. In the same way it can be shown that the principle is synthetic. But, the second premise of the argument, if a principle is synthetic it must, once again using Kant's terms not Hume's, be a posteriori. The principle of causality, Hume insists, is derived from experience. Since, third premise, metaphysical principles are, “by definition,” a priori, it follows that there are no metaphysical principles. Kant's response to the argument is, of course, to deny the second premise.²² There is another possibility: a proposition might be both synthetic

21 This is the argument of the *Enquiry Concerning Human Understanding* and not the *Treatise of Human Nature*. Although there is some evidence to indicate that Kant was familiar with the discussion of causality in the *Treatise* through his reading of Beattie, in his reply Kant seems to have the *Enquiry* version of Hume's argument in mind. For he accuses Hume of mistakenly inferring the contingent character of the principle of causality from the contingent character of particular causal judgments. See the *Critique*, A766/B794: "Hume was therefore in error in inferring from the contingency of our determination in accordance with the law the contingency of the law itself."

22 As he makes explicit at B127: From the premises he used, Hume "argued quite consistently. It is impossible, he declared, with these concepts and the principles to which they give rise, to pass beyond the limits of experience."

and a priori.

Kant sometimes suggests that Hume simply overlooked this possibility and that it is enough to mention it to invalidate Hume's argument. At other times, he suggests that the possibility of synthetic a priori propositions is entailed by the fact that there are synthetic a priori propositions, as at B128, for example:

Now this empirical derivation (of Hume's) cannot be reconciled with the scientific a priori knowledge which we do actually possess, namely, pure mathematics and general science of nature; and this fact therefore suffices to disprove such derivation.

But Kant was also aware that this move is not satisfactory. Kant's problem was to account for the fact that a priori propositions, produced by reason, were synthetic in that they had application to the objects of our experience, i.e., were "really possible." It does not help very much to be told that there are such propositions. A solution to Hume's problem involves an explanation. We must know how the "real possibility" of synthetic a priori propositions can be guaranteed.

When Kant asks "how are synthetic a priori propositions possible?" he is to be understood as asking how, or under what conditions, synthetic a priori propositions can be said to have application. This is equivalent, for him, to asking under what conditions they are meaningful, under what conditions they have a (knowable) truth value. There is no problem, presumably, in connection with synthetic a priori propositions. Their application is guaranteed by the fact of their derivation from experience. This is no doubt one of the reasons why Hume thought that if a proposition was synthetic it had to be a posteriori as well; no other conclusion would allow the fit between our concepts and the world to be explained. Neither is there a serious problem, from one point of view, in connection with the synthetic a priori propositions of mathematics.²³ The problem is to say how objects that are in some sense "given"—that is, which are not a product of the mathematical (or any other) imagination—can be described or determined a priori, as

²³ Note that Kant takes all non-mathematical synthetic a priori propositions as "metaphysical."

metaphysics pretends.²⁴ If, like God, we were capable of constructing objects for all our concepts, there would be no problem here either. But human intuition is not productive in the same way. There is, Kant rightly insists, a passive element in all perception. The foregoing remarks are not intended to deepen anyone's understanding of Hume or Kant. But these remarks should put us in a position to understand the bearing of Hume's challenge on Newton's theory. On my reading, Hume's challenge precludes a realist interpretation of Newton's theory. What Kant is concerned to show is not that Newton's theory can be "established," on the basis of certain fundamental synthetic a priori principles, with or without the addition of experimental observations, and hence guaranteed against skeptical attack, but rather that it is "objective." To say that it is "objective" is to say that it applies to objects that are independent of us in the sense (a) that these objects occupy determinate spatial-temporal locations, (b) that they are capable of causally interacting with one another, (c) that they continue to exist when unperceived by anyone, and (d) that they are not necessarily perceivable with the unaided senses alone, as in the case of the "magnetic matter pervading all bodies."

To begin with, why should Hume's challenge preclude a realist interpretation of physics? Suppose that what is "given" are sense-impressions. How, on the basis of these sense-impressions, can we claim that, for example, objects continue to exist when unperceived? A possible answer is that we make our claim on the basis of causal laws. We can "reach" any object, so to speak, given present sense-

24 It is clear from the letter to Marcus Herz of February 21, 1772, that this was the problem that in large part motivated the Critique of Pure Reason. In his Inaugural Dissertation, Kant had argued that metaphysical propositions find application to things in themselves, independent of our "sensible modes" of experiencing them. On turning to a closer examination of the issue, he saw that no way of justifying the application of such propositions to things in themselves could be found. In fact, the very concept of a thing in itself precludes the possibility of saying anything (knowledgeably) about it. The question then became: can the application of metaphysical propositions to appearances, that is, objects insofar as they are sensibly experienced by us, be justified? The Critique was intended to provide an affirmative answer. The solution to the corresponding problem in the case of mathematics had been worked out as early as the Berlin prize essay of 1764. In a way, Kant's final solution to the "problem of metaphysics" involves generalizing the results of this essay to the "pure" part of physics.

impressions and laws that allow us to "project" these impressions. On the other hand, if the appropriate causal laws cannot be justified rationally, as Hume seemed to have shown, then rational projection is out of the question and our claim about the continued existence of unperceived objects, to use the same example, unjustified.

Having reached this point in the argument, Hume suggests two different moves. The more sophisticated move is to say that the gaps in our sense-experience created, for example, by the assumption that objects continue to exist unperceived (or that there are objects unperceivable by the unaided senses), are filled in by the useful fictions of the imagination. We "feign" the existence of objects to fill in the gaps. This comes to taking physical objects as "theoretical constructs" that serve to explain but are not reducible to patterns of sense-experiences. Our belief in the existence of a world of independent objects cannot be rationally justified, but it can in some sense be "explained."

The less sophisticated, and much more widely imitated, move is to say that, since the gaps cannot be filled in, we should reconstruct our concept of an independently existing object in such a way, in terms of actual and hypothetical patterns of sense-impressions, that the gaps are not created in the first place. On this "phenomenalist" version of Hume, objects are "reduced" to sets of sense-impressions, physical laws—Newton's among them—are reinterpreted so as to be mere instruments of prediction of the course of our actual sense experience. Crudely, to say that whenever A then B is, on this view, to say no more than that whenever I have a sense-impression of type A it will be followed by a sense-impression of type B.²⁵

For both alternatives, there is an important sense in which Newton's physics is left untouched. All of Newton's theorems hold; they are still "valid." They have just been reconstrued. As Berkeley might have put it, the scientific results have not been

²⁵ As, for example, Berkeley in the *Principles of Human Knowledge*, #50: "To explain the phenomena is all one has to show, why upon such and such occasions we are affected with such and such ideas."

doubted. Only the philosophical interpretation of them differs. Berkeley was as thoroughgoing a Newtonian as the next man.²⁶ So was Hume, as the subtitle of the *Treatise* and the final paragraph of the *Enquiry* make abundantly clear.²⁷ We can say, following philosophical tradition, that independently existing physical objects have or are "matter." Berkeley and Hume want to purge physics of matter. When Kant couples skepticism and empiricism, as he often does, the reference is to skepticism about the existence of external objects, and in particular to the existence of imperceptible particles, skepticism about the existence of "matter," not about the possibility of developing a "science of nature."

Both sorts of Humean defects are rejected by Kant.²⁸ He wants a fully realist

26 See his letter to Samuel Johnson of November 25, 1729, in *The Works of George Berkeley*, edited by A. A. Luce and T. E. Jessop (London: Thomas Nelson and Sons, Ltd., 1949), II, p. 279: "The true use and end of Natural Philosophy is to explain the phenomena of nature; which is done by discovering the laws of nature, and reducing particular appearances to them. This is Sir Isaac Newton's method; and such method or design is not in the least inconsistent with the principles I lay down. This mechanical philosophy does not assign or suppose any one natural efficient cause in the strict and proper sense; nor is it, as to its use, concerned about matter, nor is matter connected therewith; nor doth it infer the being of matter." Berkeley did think there were metaphysical elements, for instance the notion of absolute space, in Newton's work that could be excised without damage to the latter. To excise the "metaphysical" elements, particularly the concept of matter, is to provide what might be called a *minimal interpretation*, that is, in terms of what is immediately experienced, of Newton's theory.

27 It might be pointed out that Hume's critique of "natural philosophy" is directed, as is Berkeley's, against a particular philosophical interpretation of it. See, for example, the *Treatise*, Book IV, Part IV, Section IV, "Of the Modern Philosophy," where Hume argues that the scientific distinction between primary and secondary qualities cannot be taken to correspond to a real distinction in objects, and the *Enquiry*, Section IV, Part II, where doubts raised about induction concern only the conjunction between sensible qualities of objects and what Hume calls their "secret powers." To give a realist interpretation of physics is in part to accept the primary/secondary quality distinction, which Kant does (see the *Critique*, A45/B62), and the inference from an object's sensible qualities to its presumed micro-structure, which Kant also does (see A226/B273). In fact, there is a close connection between the view that objects have a micro-structure in terms of which their behavior is to be explained and the view that only the primary qualities are real (for Kant, read "empirically real") properties of objects.

28 Kant does not seem to have appreciated Hume's "sophisticated" move, that physical objects are theoretical constructs introduced to explain although not reducible to patterns of sense-impressions. In certain ways, Hume's use of the "feigning" activities of the imagination resembles Kant's doctrine of a priori synthesis; both allow us to go "beyond" our fragmentary, momentary, disconnected experience to a world of persisting, interacting, unified physical objects.

interpretation of Newtonian physics and he thinks that one can be guaranteed by the argument of the Transcendental Deduction. The argument is complex and has received a great deal of commentary. But, put in its simplest terms: unless we assume that those a priori principles that make a world of independent objects possible have application, from which follows the possibility of a realist interpretation of physics, then we will not have an adequate concept of the self. An adequate concept of the self as subject of experience, requires a concept of an object as having definite spatial-temporal location. But for us to be able to make out what it is for an object to have a definite spatial-temporal location requires that certain a priori principles—causality, substance, and community, for example—have application to our experience. Briefly, the conditions that have to be satisfied if physics, and mathematics, are to have application, that is, objective reality, are the conditions that must be satisfied if there is to be a "world," that is, a set of objects having definite spatial-temporal locations. And these conditions must be satisfied if we are to have an adequate concept of the self, that is, a concept of the self as subject of experience. What follows from what Kant calls "the unity of consciousness" is not Newtonian physics, or the "validity" of Newtonian physics, but rather the possibility of providing a realist or material interpretation of Newtonian physics. Kant's great insight in the Transcendental Deduction is that the unity of consciousness amounts to the possibility of being able to distinguish between what is objective and what is subjective in our experience and that this possibility in turn requires more than a minimal interpretation of Newton's (or any comparable) theory. It is not just that the a priori principles that make a more robust interpretation possible do have application. They must.

Kant is interested not in defending Newton but in providing a realist interpretation of his results. In the first of the three notes to #13 of the *Prolegomena*, Kant says that:

Pure mathematics, and in particular pure geometry, can only have objective reality under the condition that it bears merely on the objects of the senses. . . . From this it follows that the propositions of geometry are not determinations of a mere creature of our poetic fantasy which could not be reliably referred to real objects. . . . The space of

the geometer would be held to be mere fiction and would be allowed no objective validity; because it cannot be seen how things must agree necessarily with the picture that we make of them by ourselves and in advance.

The same dual problem arises in the case of physics, unsurprisingly, since for Kant physics is no more than applied mathematics: to say what the conditions are that must be satisfied if the propositions of physics are to have objective reality and to show that those conditions are satisfied.

Kant continues in the same passage:

It will always remain a remarkable phenomenon in the history of philosophy that there was a time when even mathematicians who were also philosophers began to doubt, not indeed the correctness of their geometrical propositions in so far as they merely concern space, but the objective validity and application to nature of this concept itself and of all geometrical determinations of it.

Newton himself might very well be intended. In *Principia*, there are elements of two very different views. Alongside the realist view, expressed, for example, in the pronouncement that “gravity really exists . . . (it is an) active principle,” there is a formalist view to the effect that *Principia* is no more than an exercise in advanced mathematics. The formalist elements invariably come to the fore when the reality of forces is at stake (exception made for pronouncements like the one just quoted concerning gravity). Newton says, for instance, that in *Principia* he intends

... only to give a mathematical notion of those forces, without considering their physical causes and seats; ... considering those forces not physically, but mathematically; ...define the kind, or the manner of any action, the causes or physical reasons of those forces; ...in a true and physical sense ... to certain centres; when at any time . . .to speak of centres as attracting, or as endowed with attractive power.
[Newton 1966, 5-6]

On the basis of this sort of passage, at least one of Newton's early reviewers was led to say that *Principia* was “mathematics,” not “physics.” But, for Kant, it is physics; hence the need to demonstrate the reality of forces. For Berkeley and for Hume, on the other hand, force-talk is translated into motion-talk, dynamics reduces to kinematics. “Forces” drop out of the picture of the world, to be replaced by generalizations about motion that are themselves analyzed in terms of regular

sequences of sense-impressions. As a result, there is no problem about the application of Newton's physics. The "fit" of mathematics to the world is assured ultimately by the "reduction" of both objects and the propositions about them to sense-impressions. In a very different direction, Descartes similarly guarantees "fit" by eliminating forces; objects are "reduced" to their geometrical properties, matter is identified with extension, and force-talk is explained away in terms of the perceived deviations in the movement of objects. But, again, it is just this sort of "reduction" of matter that Kant resists. Hence, this time against Descartes, it once more becomes a question of establishing the reality of forces.

The problem of the "objective reality" of physics is pointed up in at least three additional ways. One of these concerns Kant's attack on idealism. What serves to unite most of his philosophical predecessors, both rationalist and empiricist, is their common idealism, which is to say that in one form or another they doubt or deny the existence of independent objects having definite spatial-temporal locations. As we shall have occasion to see shortly, these doubts and denials are intimately bound up with questions having to do with the reality of forces. But to be an "idealist" is, in the case of physics, just to deny the possibility of a realist or material interpretation of it. On the other hand, to make out the necessity of such an interpretation is to "refute" idealism. And it is clear that Kant is bent on refuting idealism, not only from the section entitled "The Refutation of Idealism," where Berkeley and Descartes (and by implication the two traditions of which they are representatives) are grouped together as "idealists," but throughout the *Critique*, as in the preface to the second edition:

However harmless idealism may be considered in respect of the essential aims of metaphysics (though, in fact, it is not thus harmless), it still remains a scandal to philosophy and to human reason in general that the existence of things outside us (from which we derive the whole material of knowledge, even for inner sense) must be accepted merely on faith, and that if anyone thinks good to doubt their existence, we are unable to counter his doubts by any satisfactory proof. [Bxl, note a]

A second way to point up Kant's concern with a realist interpretation of physics is

to recall his insistence on his own empirical realism and his corollary claim that only his own position, so-called "transcendental idealism," makes empirical realism possible.²⁹

A third way to point up Kant's realist concern is to look at his characterization of his project as a transcendental inquiry. He tells us at A11/B25 of the *Critique* that all knowledge is entitled transcendental "which is occupied not so much with objects as with the mode of our knowledge of objects insofar as this mode of knowledge is to be possible a priori." I take this to imply that a transcendental inquiry is not concerned with the correctness of, for instance, Newtonian physics, but rather with the philosophical interpretation to be placed upon it. To put it in a slightly different way, Kant's use of "transcendental" here is designed to make a sharp distinction, perhaps for the first time in the history of thought, between scientific and philosophical questions. The distinction was not, according to Kant, respected by his predecessors. It was the mistake on which traditional metaphysics rested. As a result, his predecessors tended to embark on the project of finding philosophical foundations for natural science.³⁰ But once we realize that as philosophers we are interested not in objects but in concepts and the conditions of their application we shall realize that it is not a philosophical task to "establish" a particular physical theory.

Kant's use of "transcendental" has another aspect. We can think of the language of a particular theory as an object language. Then a "transcendental" inquiry, philosophy as rightly understood, will be a meta-theoretical investigation relative to that object language. A transcendental inquiry will establish, for example, what the singular terms of the theory in question are, under what conditions they may be

29 See the Paralogisms of Pure Reason in the first edition of the *Critique of Pure Reason*, at A371 for example: "The transcendental idealist is, therefore, an empirical realist, and allows to matter, as appearance, a reality which does not permit of being inferred, but is immediately perceived" and footnote 13 to chapter 1.

30 Even Hume: "In pretending therefore to explain the principles of human nature, we in effect propose a compleat system of the sciences, built on a foundation almost entirely new, and the only one upon which they can stand with any security." [T, p. xx]

said to refer, etc. In arguing for a realist interpretation of physics, Kant is indicating at the same time what he takes to be the philosopher's task and maintaining as well that only a particular semantic commentary is adequate.

Kant is perfectly explicit that the propositions of physics are contingent. "We cannot," he says, "without destroying the unity of our system, anticipate general natural science, which is based on certain primary experiences" [A171/B213]. Only such experiences, in contrast to mere ratiocination, can determine which of its propositions are true and which false. From this it follows that the propositions of physics are not synthetic a priori. For if they were a priori, then of course experience would not be necessary to determine their truth or falsity.

Let us, then, take a closer look than we have done so far at the one work of Kant's "mature" period devoted especially to the philosophy of physics, the *Metaphysical Foundations of Natural Science*. Kant's program in the MFNS, to put it very briefly, is to "construct" the concept of matter, a concept he takes to be at the center of natural science, and thereby to guarantee its "real possibility." This construction at one and the same time demonstrates the mathematizability of the concept of matter, and thus secures the application of mathematics to nature, and proves its objective reality.

Two closely connected motives seem to have guided this program. One concerns Kant's "refutation of idealism". Kant's "refutation" turns on the claim that the unity of consciousness requires the existence of objects in some sense external to us. It cannot merely be the case that such objects have spatial location, for otherwise they are not to be distinguished from volumes of empty space. Spatial location does not by itself provide us with a suitable empirical criterion for the existence of objects external to us. In addition to spatial extension, we must also attribute forces to such objects, the possibility of their causally interacting with one another and, of utmost importance, with ourselves. As Kant puts the point at A265/B321 of the *Critique*:

We are acquainted with substance in space only through forces which are active in this and that space, either bringing other objects to it (attraction), or preventing them from penetrating into it (repulsion and impenetrability). We are not acquainted with any other properties constituting the concept of the substance which appears in space and which we call matter.³¹

Thus the "construction" of the concept of matter has to do in the first place with a distinction between matter and space, hence with the necessity of attributing forces to objects. In this respect, the "construction" of the concept of matter has to do in the first place with the completion of Kant's enterprise in the Critique of Pure Reason.³²

The other motive that seems to have guided Kant's program in the MFNS has to do more specifically with what might be termed the problem of forces. Again, one aspect of the problem has already been introduced in earlier references to Berkeley and Hume. The "problem of forces" centered in, although it was not limited to, difficulties with the notion of action at a distance. There was no question about the inductive support for the law of universal gravitation, or for the laws of motion; that is, they were predictively confirmed. But there was a philosophical difficulty with the *intelligibility* of action at a distance. Newton's philosophical friends Locke and Clarke maintained that action at a distance is "a contradiction" and "impossible to conceive," and Leibniz attacked the theme that it was at best an occult quality. Even Newton himself had tried, without success, to eliminate action at a distance in favor of a mechanical hypothesis. Kant denies that action at a distance is logically impossible; [MFNS, 513-14] but he is faced with the problem of its "real possibility." This is one of the problems Kant hopes to solve in constructing the concept of

31 See also A277/B333, A285/B341, A371, A413/B440, and A618/B646 ("in fact, extension and impenetrability [which between them make up the concept of matter] constitute the supreme empirical principle of the unity of appearances").

32 In this connection, Kant makes a very interesting remark in the MFNS, 478:

... it is indeed very remarkable... that general metaphysics in all cases where it requires instances (intuitions) in order to provide meaning for its pure concepts of the understanding must always take such instances from the general doctrine of body ... the understanding is taught only through instances from corporeal nature what the conditions are under which the concepts of the understanding can alone have objective reality, i.e., meaning and truth.

matter, as well as the more general problem having to do with the reality of forces (whether propagated at a distance or not).

What Kant is trying to do in the MFNS is to demonstrate the “real possibility” of the concept of matter. Now to demonstrate the “real possibility” of a concept is not merely to analyze it; it is to give the conditions for its application. Thus a condition for the application of spatial concepts is that they have an empirical representation. In the MFNS, Kant first tries, on analogy with the argument of the Axioms of Intuition and the Anticipations of Perception in the *Critique*, to show under what conditions the concept of matter is mathematizable; this involves establishing an appropriate additivity rule (given in the law of composition of velocities) and solving various problems connected with continuity. At the level of the Phoronomy, or kinematics, there are no important difficulties. At this level, matter can be represented as points. There is no distinction to be made between matter and space. The physics of bodies is indistinguishable from geometry. It is perhaps just this fact that assures the application of geometry in the first place.

Kant then tries to prove, more on analogy with the Analogies of Experience,³³ the “objectivity” of the concept of matter. This involves, in part, setting out the conditions that must be satisfied if matter is to be distinguished from empty space. In particular, the “objectivity” of the concept of matter is shown to depend on our attributing two fundamental forces to matter (these are not “included in” its concept but, as conditions of its “possibility,” “belong to” it). Questions concerning the construction of the concept of matter then become questions concerning the construction of these two fundamental forces.

Kant's program in the MFNS, then, might be summarized in this way. While the physicist alone can determine the specific properties of different sorts of objects, the

33 The parallel breaks down in certain respects. The *Metaphysical Foundations of Dynamics*, the second chapter of the MFNS, mixes together questions having to do with the application of mathematics—e.g., continuity, on analogy with the Anticipations of Perception—and questions having to do with the “objectivity” of the concept of matter—e.g., the proofs that matter must be endowed with two fundamental forces.

philosopher can determine what general properties its concept must have if it is to be a "possible" concept. In the case at hand, the philosopher can determine a priori, that each piece of matter must be endowed with attractive and repulsive forces, but only the physicist can determine the particular magnitude of these forces.

If not always clear in detail, the main outlines of the program are comprehensible. But Kant's attempt to carry it out reveals two sorts of difficulties buried in the program. One of these difficulties originates in his claim that the concept of matter is an empirical concept³⁴ because an element in the concept, motion, cannot be known a priori. Nevertheless, the concept of matter seems to play a rather curious role, somewhere between purely a priori and purely empirical concepts (Kant says, in fact, that it has certain a priori elements in it). On the one hand, the concept is empirical insofar as the "possibility" of motion cannot be demonstrated a priori; motion can be given only a posteriori, in experience. On the other hand, the possibility of experience, and ultimately the unity of consciousness, seem to require something like the concept of matter, first for the construction of space and time, then for making out a distinction between objects and space, on which not only the construction just mentioned, but also the "refutation of idealism" would seem to depend. Kant's narrow dichotomy—a priori or a posteriori—does not allow him to deal adequately with the concept of matter.³⁵ At the same time, the fact that the concept of matter is called on to play different roles on different occasions accounts for the shifts in Kant's attitude toward the a priori/a posteriori status of Newton's theory.

One of the difficulties in Kant's attempt to carry out his program concerns the

34 The concept of matter is empirical, but the proof of its "possibility" (requiring application of the transcendental method) must be philosophical.

35 Kant sometimes recognizes the peculiarly "intermediate" position of the concept of matter by distinguishing, in #15 of the *Prolegomena*, for example, between pure natural science (the Principles), general natural science (the propositions demonstrated in the MFNS), and physics proper, propositions having to do with the possibility of the concept of matter fall under general natural science.

construction of forces. Since the concept of matter, on Kant's analysis of it, essentially contains attractive and repulsive forces, the construction of the concept eventually involves the construction of these forces. But since according to Kant our knowledge of these forces is inevitably a posteriori, [MFNS, 524] they cannot be constructed. Thus, the task Kant sets himself in the MFNS, to construct the concept of matter, ends in half-admitted failure. On the one hand, attractive and repulsive forces "make possible the general concept of matter." On the other hand, owing to their a posteriori aspects, it is not possible to "construct this concept (in detail and thus) represent it as possible in intuition." [MFNS, 525] Even more confusing is Kant's suggestion [MFNS, 534] that although he has failed to construct (completely) the fundamental forces, and hence the concept of matter, there is still left open the possibility that they might be constructed by others.

CHAPTER 3

THEORETICAL DIMENSION OF KANT'S THEORY OF KNOWLEDGE

3.1. The Distinction between a priori and a posteriori Judgments

Kant's problem is similar to Locke's. Locke states that his purpose is to inquire into the original, certainty, and extent of human knowledge; and he says,

If, by this inquiry into the nature of the understanding I can discover the powers thereof; how far they reach, to what things they are in any degree proportionate, and where they fail us; I suppose it may be of use to prevail with the busy mind of man, to be more cautious in meddling with things exceeding its comprehension; to stop when it is at the utmost extent of its tether; and to sit down in a quiet ignorance of those things, which, upon examination, are found to be beyond the reach of our capacities. [*Essay*, i, 1, §§ 2, 4.]

Thus, to use Caird's analogy, [Caird 1889, p. 10] the task which both Locke and Kant set themselves resembled that of investigating a telescope, before turning it upon the stars, to determine its competence for the work.

The above outline of Kant's problem is of course only an outline. Its definite formulation is expressed in the well-known question, "How are a priori synthetic judgments possible?" [B19] To determine the meaning of this question it is necessary to begin with some consideration of the terms "a priori" and "synthetic".

While there is no difficulty in determining what Kant would have recognized as an a priori judgment, there is difficulty in determining what he meant by calling such a judgment a priori. The general account is given in the first two sections of the Introduction. An a priori judgment is introduced as something opposed to an a posteriori judgment, or a judgment which has its source in experience. Instances of the latter would be "This body is heavy", and "This body is hot". The point of the word "experience" is that there is direct apprehension of some individual, e. g. an individual body. To say that a judgment has its source in experience is of course to imply a distinction between the judgment and experience, and the word 'source'

may be taken to mean that the judgment depends for its validity upon the experience of the individual thing to which the judgment relates. An a priori judgment, then, as first described, is simply a judgment which is not a posteriori. It is independent of all experience; in other words, its validity does not depend on the experience of individual things. It might be illustrated by the judgment that all three-sided figures must have three angles. So far, then, no positive meaning has been given to a priori.³⁶

Kant then proceeds to state the positive meaning of a priori, but to give tests for what is a priori. Since a test implies a distinction between itself and what is tested, it is implied that the meaning of a priori is already known.³⁷

The tests given are necessity and strict universality.³⁸ Since judgments which are necessary and strictly universal cannot be based on experience, their existence is said to indicate another source of knowledge. And Kant gives as illustrations, (1)

36 Kant is careful to exclude from the class of a priori judgments proper what may be called relatively a priori judgments, viz. judgments which, though not independent of all experience, are independent of experience of the facts to which they relate. "Thus one would say of a man who undermined the foundations of his house that he might have known a priori that it would fall down, i.e. that he did not need to wait for the experience of its actual falling down. But still he could not know this wholly a priori, for he had first to learn through experience that bodies are heavy and consequently fall, if their supports are taken away." [B. 2]

37 It may be noted that in this passage (Introduction, §§ 1 and 2) Kant is inconsistent in his use of the term "pure". Pure knowledge is introduced as a species of a priori knowledge: "A priori knowledge, if nothing empirical is mixed with it, is called pure". (B. 3,) And in accordance with this, the proposition 'every change has a cause' is said to be a priori but impure, because the conception of change can only be derived from experience. Yet immediately afterwards, pure, being opposed in general to empirical, can only mean a priori. Again, in the phrase "pure a priori" (B. 4 fin.), the context shows that "pure" adds nothing to "a priori", and the proposition "every change must have a cause" is expressly given as an instance of pure a priori knowledge. The inconsistency of this treatment of the causal rule is explained by the fact that in the former passage he is thinking of the conception of change as empirical, while in the latter he is thinking of the judgment as not empirical. At bottom in this passage "pure" simply means a priori.

38 In reality, these tests come to the same thing, for necessity means the necessity of connexion between the subject and predicate of a judgment, and since empirical universality, to which strict universality is opposed, means numerical universality, as illustrated by the proposition "All bodies are heavy", the only meaning left for strict universality is that of a universality reached not through an enumeration of instances, but through the apprehension of a necessity of connexion.

any proposition in mathematics, and (2) the proposition "Every change must have a cause".

So far Kant has said nothing which determines the positive meaning of a priori. A clue is, however, to be found in two subsequent phrases. He says that we may content ourselves with having established as a fact the pure use of our faculty of knowledge [B 5]. And he adds that not only in judgments, but even in conceptions, is an a priori origin manifest. The second statement seems to make the a priori character of a judgment consist in its origin. As this origin cannot be experience, it must, as the first statement implies, lie in our faculty of knowledge. Kant's point is that the existence of universal and necessary judgments shows that we must possess a faculty of knowledge capable of yielding knowledge without appeal to experience. The term a priori, then, has some reference to the existence of this faculty; in other words, it gives expression to a doctrine of "innate ideas". If so, it may be said that on the whole, by a priori judgments Kant really means judgments which are universal and necessary, and that he regards them as implying a faculty which gives us knowledge without appeal to experience.

We may now turn to the term synthetic judgment. Kant distinguishes analytic and synthetic judgments. In any judgment the predicate B either belongs to the subject A, as something contained (though covertly) in the conception A, or lies completely outside the conception A, although it stands in relation to it. In the former case the judgment is called analytic, in the latter synthetic.[B 10] "All bodies are extended" is an analytic judgment; "All bodies are heavy" is synthetic. It immediately follows that only synthetic judgments extend our knowledge; for in making an analytic judgment we are only clearing up our conception of the subject. This process yields no new knowledge, for it only gives us a clearer view of what we know already. Further, all judgments based on experience are synthetic, for it would be absurd to base an analytical judgment on experience, when to make the judgment we need not go beyond our own conceptions. On the other hand, a priori judgments are sometimes analytic and sometimes synthetic. For, besides analytical judgments, all

judgments in mathematics and certain judgments which underlie physics are asserted independently of experience, and they are synthetic.

Here Kant is obviously right in vindicating the synthetic character of mathematical judgments. In the arithmetical judgment $7 + 5 = 12$, the thought of certain units as a group of twelve is no mere repetition of the thought of them as a group of five added to a group of seven. Though the same units are referred to, they are regarded differently. Thus the thought of them as twelve means either that we think of them as formed by adding one unit to a group of eleven, or that we think of them as formed by adding two units to a group of ten, and so on. And the assertion is that the same units, which can be grouped in one way, can also be grouped in another. Similarly, Kant is right in pointing out that the geometrical judgment, 'A straight line between two points is the shortest,' is synthetic, on the ground that the conception of straightness is purely qualitative, while the conception of shortest distance implies the thought of quantity.

It should now be an easy matter to understand the problem expressed by the question, "How are synthetic a priori judgments possible?" Its substance may be stated thus. The existence of synthetic a posteriori judgments presents no difficulty. For experience is equivalent to perception, and, as we suppose, in perception we are confronted with reality, and apprehend it as it is. If I am asked, "How do I know that my pen is black or my chair hard?" I answer that it is because I see or feel it to be so. In such cases, then, when my assertion is challenged, I appeal to my experience or perception of the reality to which the assertion relates. My appeal raises no difficulty because it conforms to the universal belief that if judgments are to rank as knowledge, they must be made to conform to the nature of things, and that the conformity is established by appeal to actual experience of the things. But do synthetic a priori judgments satisfy this condition? Apparently not. For when I assert that every straight line is the shortest way between its extremities, I have not had, and never can have, experience of all possible straight lines. How then can I be sure that all cases will conform to my judgment? In fact, how can I anticipate my

experience at all? How can I make an assertion about any individual until I have had actual experience of it? In an a priori synthetic judgment the mind in some way, in virtue of its own powers and independently of experience, makes an assertion to which it claims that reality must conform. Yet why should reality conform? A priori judgments of the other kind, namely analytic judgments, offer no difficulty, since they are at bottom tautologies, and consequently denial of them is self-contradictory and meaningless. But there is difficulty where a judgment asserts that a term B is connected with another term A, B being neither identical with nor a part of A. In this case there is no contradiction in asserting that A is not B, and it would seem that only experience can determine whether all A is or is not B. Otherwise we are presupposing that things must conform to our ideas about them. Now metaphysics claims to make synthetic a priori judgments, for it does not base its results on any appeal to experience. Hence, before we enter upon metaphysics, we really ought to investigate our right to make synthetic a priori judgments at all. There, in fact, lies the importance to metaphysics of the existence of such judgments in mathematics and physics. For it shows that the difficulty is not peculiar to metaphysics, but is a general one shared by other subjects; and the existence of such judgments in mathematics is specially important because there their validity or certainty has never been questioned.³⁹ The success of mathematics shows that at any rate under certain conditions synthetic a priori judgments are valid, and if we can determine these conditions, we shall be able to decide whether such judgments are possible in metaphysics. In this way we shall be able to settle a disputed case of their validity by examination of an undisputed case. The general problem, however, is simply to show what it is which makes synthetic a priori judgments as such possible; and there will be three cases, those of mathematics, of physics, and of metaphysics.

The outline of the solution of this problem is contained in the Preface to the Second

³⁹ Kant points out that this certainty has usually been attributed to the analytic character of mathematical judgments, and it is of course vital to his argument that he should be successful in showing that they are really synthetic.

Edition. There Kant urges that the key is to be found by consideration of mathematics and physics. If the question be raised as to what it is that has enabled these subjects to advance, in both cases the answer will be found to lie in a change of method.

In the earliest times to which the history of human reason extends, mathematics, among that wonderful people, the Greeks, had already entered upon the sure path of science. But it must not be supposed that it was as easy for mathematics as it was for logic -- in which reason has to deal with itself alone -- to light upon, or rather to construct for itself, that royal road. On the contrary, I believe that it long remained, especially among the Egyptians, in the groping stage, and that the transformation must have been due to a revolution brought about by the happy thought of a single man, the experiment which he devised marking out the path upon which the science must enter, and by following which, secure progress throughout all time and in endless expansion is infallibly secured. ...A new light flashed upon the mind of the first man (be he Thales or some other) who demonstrated the properties of the isosceles triangle. The true method, so he found, was not to inspect what he discerned either in the figure, or in the bare concept of it, and from this, as it were, to read off its properties; but to bring out what was necessarily implied in the concepts that he had himself formed a priori, and had put into the figure in the construction by which he presented it to himself. If he is to know anything with a priori certainty he must not ascribe to the figure anything save what necessarily follows from what he has himself set into it in accordance with his concept. [B. X-xii]

Here Kant's point is as follows. Geometry remained premature so long as men confined themselves either to the empirical study of individual figures, of which the properties were to be discovered by observation, or to the consideration of the mere conception of various kinds of figure, e.g. of an isosceles triangle. In order to advance, men had in some sense to produce the figure through their own activity, and in the act of constructing it to recognize that certain features were necessitated by those features which they had given to the figure in constructing it. Thus men had to make a triangle by drawing three straight lines so as to enclose a space, and then to recognize that three angles must have been made by the same process. In this way the mind discovered a general rule, which must apply to all cases, because the mind itself had determined the nature of the cases. A property B follows from a nature A; all instances of A must possess the property B, because they have solely that nature A which the mind has given them and whatever is involved in A. The mind's own rule holds good in all cases, because the mind has itself determined the

nature of the cases.

Kant's statements about physics, though not the same, are analogous. Experiment, he holds, is only fruitful when reason does not follow nature in a passive spirit, but compels nature to answer its own questions. Thus, when Torricelli made an experiment to ascertain whether a certain column of air would sustain a given weight, he had previously calculated that the quantity of air was just sufficient to balance the weight, and the significance of the experiment lay in his expectation that nature would conform to his calculations and in the vindication of this expectation. Reason, Kant says, must approach nature not as a pupil but as a judge, and this attitude forms the condition of progress in physics.

The examples of mathematics and physics suggest, according to Kant, that metaphysics may require a similar revolution of standpoint, the lack of which will account for its past failure. An attempt should therefore be made to introduce such a change into metaphysics. The change is this. Hitherto it has been assumed that our knowledge must conform to objects. This assumption is the real cause of the failure to extend our knowledge a priori, for it limits thought to the analysis of conceptions, which can only yield tautological judgments. Let us therefore try the effect of assuming that objects must conform to our knowledge. This is the Copernican revolution of Kant. We find that this reversal of the ordinary view of the relation of objects to the mind enables us for the first time to understand the possibility of synthetic a priori judgments, and even to demonstrate certain laws which lie at the basis of nature, e.g. the law of causality. It is true that the reversal also involves the surprising consequence that our faculty of knowledge is incapable of dealing with the objects of metaphysics proper, viz. God, freedom, and immortality, for the assumption limits our knowledge to objects of possible experience. But this very consequence, namely the impossibility of metaphysics, serves to test and vindicate the assumption. For the view that our knowledge conforms to objects as things in themselves leads us into an insoluble contradiction when we go on, as we must, to seek for the unconditioned; while the assumption

that objects must, as phenomena, conform to our way of representing them, removes the contradiction. Further, though the assumption leads to the denial of speculative knowledge in the sphere of metaphysics, it is still possible that reason in its practical aspect may step in to fill the gap. And the negative result of the assumption may even have a positive value. For if, as is the case, the moral reason, or reason in its practical aspect, involves certain postulates concerning God, freedom, and immortality, which are rejected by the speculative reason, it is important to be able to show that these objects fall beyond the scope of the speculative reason. And if we call reliance on these postulates, as being presuppositions of morality, faith, we may say that knowledge must be abolished to make room for faith.

This answer to the main problem, given in outline in the Preface, is undeniably plausible. Yet examination of it suggests two criticisms which affect Kant's general position.

In the first place, the parallel of mathematics which suggests the "Copernican" revolution does not really lead to the results which Kant supposes. Advance in mathematics is due to the adoption not of any conscious assumption but of a certain procedure, namely that by which we draw a figure and thereby see the necessity of certain relations within it. To preserve the parallel, the revolution in metaphysics should have consisted in the adoption of a similar procedure, and advance should have been made dependent on the application of an at least quasi-mathematical method to the objects of metaphysics. Moreover, since these objects are God, freedom, and immortality, the conclusion should have been that we ought to study God, freedom, and immortality by constructing them in perception and thereby gaining insight into the necessity of certain relations. Success or failure in metaphysics would therefore consist simply in success or failure to see the necessity of the relations involved. Kant, however, makes the condition of advance in metaphysics consist in the adoption not of a method of procedure but of an assumption, viz. that objects conform to the mind. And it is impossible to see how

this assumption can assist what, on Kant's theory, it ought to have assisted, viz. the study of God, freedom, and immortality, or indeed the study of anything. In geometry we presuppose that individual objects conform to the universal rules of relation which we discover. Now suppose we describe a geometrical judgment, e.g. that two straight lines cannot enclose a space, as a mental law, because we are bound to think it true. Then we may state the presupposition by saying that objects, e.g. individual pairs of straight lines, must conform to such a mental law. But the explicit recognition of this presupposition and the conscious assertion of it in no way assist the solution of particular geometrical problems. The presupposition is really a condition of geometrical thinking at all. Without it there is no geometrical thinking, and the recognition of it places us in no better position for the study of geometrical problems. Similarly, if we wish to think out the nature of God, freedom, and immortality, we are not assisted by assuming that these objects must conform to the laws of our thinking. We must presuppose this conformity if we are to think at all, and consciousness of the presupposition puts us in no better position. What is needed is an insight similar to that which we have in geometry, i.e. an insight into the necessity of the relations under consideration such as would enable us to see, for example, that being a man, as such, involves living for ever.

Kant has been led into the mistake by a momentary change in the meaning given to "metaphysics". For the moment he is thinking of metaphysics, not as the inquiry concerned with God, freedom, and immortality, but as the inquiry which has to deal with the problem as to how we can know a priori. This problem is assisted by the assumption that things must conform to the mind. And this assumption can be said to be suggested by mathematics, inasmuch as the mathematician presupposes that particular objects must correspond to the general rules discovered by the mind. From this point of view Kant's only mistake, if the parallelism is to be maintained, is that he takes for an assumption which enables the mathematician to advance a metaphysical presupposition of the advance, on which the mathematician never reflects, and awareness of which would in no way assist his mathematics.

In the second place the “Copernican” revolution is not strictly the revolution which Kant supposes it to be. He speaks as though his aim is precisely to reverse the ordinary view of the relation of the mind to objects. In stead of the mind being conceived as having to conform to objects, objects are to be conceived as having to conform to the mind. But if we consider Kant's real position, we see that these views are only verbally contrary, since the word object refers to something different in each case. On the ordinary view objects are something outside the mind, in the sense of independent of it, and the ideas, which must conform to objects, are something within the mind, in the sense of dependent upon it. The conformity then is of something within the mind to something outside it. Again, the conformity means that one of the terms, viz. the object, exists first and that then the other term, the idea, is fitted to or made to correspond to it. Hence the real contrary of this view is that ideas, within the mind, exist first and that objects outside the mind, coming into existence afterwards, must adapt themselves to the ideas. This of course strikes us as absurd, because we always think of the existence of the object as the presupposition of the existence of the knowledge of it; we do not think the existence of the knowledge as the presupposition of the existence of the object. Hence Kant only succeeds in stating the contrary of the ordinary view with any plausibility, because in doing so he makes the term object refer to something which like “knowledge” is within the mind. His position is that objects within the mind must conform to our general ways of knowing. For Kant, therefore, the conformity is not between something within and something without the mind, but between two realities within the mind, viz. the individual object, as object of perception, i.e. a phenomenon, and our general ways of perceiving and thinking. But this view is only verbally the contrary of the ordinary view, and consequently Kant does not succeed in reversing the ordinary view that we know objects independent of or outside the mind, by bringing our ideas into conformity with them. In fact, his conclusion is that we do not know this object, i.e. the thing in itself, at all.

Hence his real position should be stated by saying not that the ordinary view puts

the conformity between mind and things in the wrong way, but that we ought not to speak of conformity at all. For the thing in itself being unknowable, our ideas can never be made to conform to it. Kant then only reaches a conclusion which is apparently the reverse of the ordinary view by substituting another object for the thing in itself, viz. the phenomenon or appearance of the thing in itself to us.

Further, this second line of criticism, if followed out, will be found to affect his statement of the problem as well as that of its solution. It will be seen that the problem is mis-stated, and that the solution offered presupposes it to be mis-stated. His statement of the problem takes the form of raising a difficulty which the existence of a priori knowledge presents to the ordinary view, according to which objects are independent of the mind, and ideas must be brought into conformity with them. In a synthetic a priori judgment we claim to discover the nature of certain objects by an act of our thinking, and independently of actual experience of them. Hence if a supporter of the ordinary view is asked to justify the conformity of this judgment or idea with the objects to which it relates, he can give no answer. The judgment having been made without reference to the objects, the belief that the objects must conform to it is the merely arbitrary supposition that a reality independent of the mind must conform to the mind's ideas. But Kant, in thus confining the difficulty to a priori judgments, implies that empirical judgments present no difficulty to the ordinary view; since they rest upon actual experience of the objects concerned, they are conformed to the objects by the very process through which they arise. He thereby fails to notice that empirical judgments present a precisely parallel difficulty. It can only be supposed that the conformity of empirical judgments to their objects is guaranteed by the experience upon which they rest, if it be assumed that in experience we apprehend objects as they are. But our experience or perception of individual objects is just as much mental as the thinking which originates a priori judgments. If we can question the truth of our thinking, we can likewise question the truth of our perception. If we can ask whether our ideas must correspond to their objects, we can likewise ask whether

our perceptions must correspond to them. The problem relates solely to the correspondence between something within the mind and something outside it; it applies equally to perceiving and thinking, and concerns all judgments alike, empirical as well as a priori. Kant, therefore, has no right to imply that empirical judgments raise no problem, if he finds difficulty in a priori judgments. He is only able to draw a distinction between them, because, without being aware that he is doing so, he takes account of the relation of the object to the subject in the case of an a priori judgment, while in the case of an empirical judgment he ignores it. In other words, in dealing with the general connexion between the qualities of an object, he takes into account the fact that we are thinking it, but, in dealing with the perception of the coexistence of particular qualities of an object, he ignores the fact that we are perceiving it. Further, that the real problem concerns all synthetic judgments alike is shown by the solution which he eventually reaches. His conclusion turns out to be that while both empirical and a priori judgments are valid of phenomena, they are not valid of things in themselves; i.e. that of things in themselves we know nothing at all, not even their particular qualities. Since, then, his conclusion is that even empirical judgments are not valid of things in themselves, it shows that the problem cannot be confined to a priori judgments, and therefore constitutes an implicit criticism of his statement of the problem.

Kant in the formulation of his problem implicitly admits this presupposition in the case of perception. He implies that empirical judgments involve no difficulty, because they rest upon the perception or experience of the objects to which they relate. On the other hand, he does not admit the presupposition in the case of conception, for he implies that in a priori judgments we are not confronted with reality but are confined to our own ideas. Hence we ought to ask why Kant is led to adopt an attitude in the latter case which he does not adopt in the former. The answer appears to be twofold. In the first place, there is a tendency to think of universals, and therefore of the connections between them, as being not objective realities but mere ideas. In other words, we tend to adopt the conceptualist attitude,

which regards individuals as the only reality, and universals as mental fictions. In consequence, we are apt to think that while in perception, which is of the individual, we are confronted by reality, in universal judgments, in which we apprehend connexions between universals, we have before us mere ideas. Kant may fairly be supposed to have been unconsciously under the influence of this tendency. In the second place, we apprehend a universal connexion by the operation of thinking. Thinking is essentially an activity; and since activity in the ordinary sense in which we oppose action to knowledge originates something, we tend to think of the activity of thinking as also originating something, viz. that which is our object when we think. Hence, since we think of what is real as independent of us and therefore as something which we may discover but can in no sense make, we tend to think of the object of thought as only an idea. On the other hand, what is ordinarily called perception, though it involves the activity of thinking, also involves an element in respect of which we are passive. This is the fact pointed to by Kant's phrase "objects are given in perception". In virtue of this passive element we are inclined to think that in perception we simply stand before the reality in a passive attitude. The reality perceived is thought to be, so to say, there, existing independently of us; relation to the subject is unnoticed because of our apparently wholly passive attitude. At times, and especially when he is thinking of the understanding as a faculty of spontaneity, Kant seems to have been under the influence of this second tendency.

The preceding ideas concerning the distinction between a priori and a posteriori judgments represents the account given in the two Prefaces and the Introduction, According to this account, the problem arises from the unquestioned existence of a priori knowledge in mathematics and physics and the problematic existence of such knowledge in metaphysics, and Kant's aim is to determine the range within which a priori knowledge is possible. Thus the problem is introduced as relating to a priori knowledge as such, no distinction being drawn between its character in different cases. Nevertheless the actual discussion of the problem in the body of the

Critique implies a fundamental distinction between the nature of a priori knowledge in mathematics and its nature in physics, and in order that a complete view of the problem may be given, this distinction must be stated.

The “Copernican” revolution was brought about by consideration of the facts of mathematics. Kant accepted as an absolute starting-point the existence in mathematics of true universal and necessary judgments. He then asked, “What follows as to the nature of the objects known in mathematics from the fact that we really know them?” Further, in his answer he accepted a distinction which he never examined or even questioned, viz. the distinction between things in themselves and phenomena. This distinction assumed, Kant inferred from the truth of mathematics that things in space and time are only phenomena. According to him mathematicians are able to make the true judgments that they do make only because they deal with phenomena. Thus Kant in no way sought to prove the truth of mathematics. On the contrary, he argued from the truth of mathematics to the nature of the world which we thereby know. The phenomenal character of the world being thus established, he was able to reverse the argument and to regard the phenomenal character of the world as explaining the validity of mathematical judgments. They are valid, because they relate to phenomena. And the consideration which led Kant to take mathematics as his starting-point seems to have been the self-evidence of mathematical judgments. As we directly apprehend their necessity, they admit of no reasonable doubt.

On the other hand, the general principles underlying physics, e.g. that every change must have a cause, or that in all change the quantum of matter is constant, appeared to Kant in a different light. Though certainly not based on experience, they did not seem to him self-evident. Hence, in the case of these principles, he sought to give what he did not seek to give in the case of mathematical judgments, viz. a proof of their truth. The nerve of the proof lies in the contention that these principles are involved not merely in any general judgment in physics, e.g. “All bodies are heavy,” but even in any singular judgment, e.g. “This body is heavy,”

and that the validity of singular judgments is universally conceded. Thus here the fact upon which he takes his stand is not the admitted truth of the universal judgments under consideration, but the admitted truth of any singular judgment in physics. His treatment, then, of the universal judgments of mathematics and that of the principles underlying physics are distinguished by the fact that, while he accepts the former as needing no proof, he seeks to prove the latter from the admitted validity of singular judgments in physics. At the same time the acceptance of mathematical judgments and the proof of the a priori principles of physics have for Kant a common presupposition which distinguishes mathematics and physics from metaphysics. Like universal judgments in mathematics, singular judgments in physics, and therefore the principles which they presuppose, are true only if the objects to which they relate are phenomena. Both in mathematics and physics, therefore, it is a condition of a priori knowledge that it relates to phenomena and not to things in themselves. But, just for this reason, metaphysics is in a different position; since God, freedom, and immortality can never be objects of experience, a priori knowledge in metaphysics, and therefore metaphysics itself, is impossible. Thus for Kant the very condition, the realization of which justifies the acceptance of mathematical judgments and enables us to prove the principles of physics, involves the impossibility of metaphysics.

Further, the distinction drawn between a priori judgments in mathematics and in physics is largely responsible for the difficulty of understanding what Kant means by a priori. His unfortunate tendency to explain the term negatively could be remedied if it could be held either that the term refers solely to mathematical judgments or that he considers the truth of the law of causality to be apprehended in the same way that we see that two and two are four. For an a priori judgment could then be defined as one in which the mind, on the presentation of an individual in perception or imagination, and in virtue of its capacity of thinking, apprehends the necessity of a specific relation. But this definition is precluded by Kant's view that the law of causality and similar principles, though a priori, are not

self-evident.

3.2 The Possibility of Knowledge

Kant's central problem, in general, concerns the status of metaphysics: all previous metaphysical thinking can be shown to have involved itself in uncertainties and contradictions, and these must be resolved if metaphysics is ever to become a genuine science, fit to rank with mathematics or physics. Metaphysics is thought of by Kant as the philosophical inquiry into first principles which is categorized, in accordance with contemporary practice, under three heads, God, freedom, and immortality; it is the investigation by rational methods of the nature and attributes of God, the existence and presuppositions of human freedom (free will), and the immortality of the human soul. Since the time of Plato, and even earlier, down to Kant's own day, philosophers had tried to discover conclusive proofs and demonstrations in these matters—that God exists, that He has such-and-such attributes and powers, that man possesses free will, that he possesses a soul which will continue to exist after the end of his present earthly life. But whereas in other branches of fundamental systematic thinking, mathematics and physics for example, general agreement and certainty has in many respects been reached, this is not true of metaphysics. Disagreement and controversy are as prevalent now as they were in the days of Plato and Aristotle; arguments which convince one set of thinkers are thought by others to lack all cogency. Because of this, metaphysics has in the eyes of many lost her early fame as queen of the sciences.

The principal errors into which metaphysics has fallen are divided by Kant into three groups. Some appear in the branch of metaphysics known as rational psychology, which is the attempt to discover truths about the nature of the soul by philosophical reflection, as contrasted with an empirical investigation into associated phenomena; others in rational theology, which is the attempt to discover proofs of the existence of God and truths about His nature, again by philosophical reasoning, as opposed to empirical investigation or divine revelation. But although

Kant attached importance to errors in these two branches of metaphysics, they do not seem to have provided much stimulus for his fundamentally critical attitude to all existing metaphysics; fallacious or otherwise unsatisfactory attempts to prove the immortality of the soul or the existence of God can be refuted, he thought, without casting doubt on the whole metaphysical enterprise. But with the third branch of metaphysics, rational cosmology, the situation is different; here conflicting arguments appear within metaphysics and yet, on the ordinary metaphysical assumptions, both sets of conflicting arguments appear to be equally valid. The resulting contradictions, or antinomies as Kant calls them, are in a sense inherent in reason itself; they can be resolved, but a long and roundabout course of philosophical thinking is necessary before the resolution can take place. They are four in number, and the contradictions they contain are systematic, supporting dogmatic or skeptical tendencies according as one member or the other of each pair of conflicting theses is espoused.

1. *Thesis*: The world has a beginning in time and is limited as regards space.

Antithesis: The world is infinite in both time and space.

2. *Thesis*: Every composite substance in the world is made up of simple parts, and nothing anywhere exists save the simple or what is composed of the simple.

Antithesis: No composite thing in the world is made up of simple parts, and there nowhere exists anything simple.

3. *Thesis*: Causality in accordance with laws of nature is not the only causality from which the appearances of the world can one and all be derived. To explain these appearances it is necessary to assume that there is also a causality of freedom.

Antithesis: There is no freedom; everything in the world takes place solely in accordance with laws of nature.

4. *Thesis*: There belongs to the world, either as its part or as its cause, a being that is absolutely necessary.

Antithesis: An absolutely necessary being does not exist in the world, nor does it exist outside the world as its cause.

Since these contradictions occur in the course of reasoning, and since they seem to be so deeply entrenched in the activity of reasoning itself, Kant takes the view that the whole of metaphysics rests on unreliable foundations, and that it will continue to do so until a full inquiry into the working of reason itself has been undertaken. He proposes, then, to substitute a critical approach for a dogmatic one; instead of dogmatically assuming, as previous writers on metaphysics have done, that our intellectual powers are sufficient for the making of the discoveries which are the object of metaphysics, he insists that metaphysical investigation be suspended until a full inquiry has been made into the nature of our reasoning powers and their suitability for this metaphysical task.⁴⁰ Kant was not, of course, the first to suggest the desirability of reflection of this general kind. Descartes' method of pretending to doubt everything that could be doubted without absurdity, leading to his conclusion that he could not possibly doubt his own existence as a thinking being, and to the installation on this foundation of a whole system of knowledge, marks at least a small advance on the completely unreflective attitudes of his predecessors to the mental apparatus with which metaphysical discoveries were supposed to be made; but Descartes stops well short of a systematic investigation of the kind which Kant demands, and makes more assumptions than his method, if strictly observed,

⁴⁰ Kant had himself been guilty, in his earlier thinking, of some metaphysical errors of the type which he is now criticizing; in 1763, for example, he published an essay entitled *The Only Possible Ground for a Demonstration of the Existence of God*, containing a defense of a method of theological argument, from analysis of concepts to an existential conclusion, which he later came to regard as inadequate. Even though he had always considered the frequent conflicts between philosophers as a reproach or scandal, he had not at first made any systematic attempt to see how the conflicts could be resolved; and between the undertaking of this attempt (in about 1770, as we know from his letters) and the publication of the first edition of the *Critique* eleven years had elapsed—hardly surprising when we consider the magnitude of the undertaking.

would entitle him to. Locke might be thought to have provided something much nearer the mark; for in writing the *Essay concerning Human Understanding* he set out to examine the operation of the human mind in the hope that he might thereby discover which are the matters on which we may hope to attain certainty and which are those in which we must remain content with opinion and conjecture. But Locke's "physiology of the human understanding", as Kant calls it [A ix] , is in his view quite inadequate to serve its intended purpose; it does not probe deeply enough and remains limited by its empirical approach.

The illustrious Locke, failing to take account of these considerations i.e., the need to validate the pure concepts of the understanding as a priori conditions of the possibility of experience, and meeting with pure concepts of the understanding in experience, deduced them also from experience, and yet proceeded so inconsequently that he attempted with their aid to obtain knowledge which transcends all limits of experience. [B127]

The only one of Kant's predecessors to whom he is prepared to give credit for making a serious contribution to the problem is David Hume. Hume was the first to expose in a serious philosophical way the difficulties which must be faced by any attempt to achieve results in metaphysics, and Kant acknowledged his work, in a famous phrase, as having first woken him from his dogmatic slumbers'.⁴¹ His main contribution to this awakening concerned his treatment of the relation of cause and effect, and he showed that reason alone, working a priori from concepts, cannot demonstrate that any particular effect must necessarily result from a given cause; the cause-effect relationship is discovered in experience.

As Kant puts it [*Prolegomena*, iv 257], 'The imagination, having by experience brought certain representations under the law of association, passes off a subjective necessity arising out of this, namely custom, for an objective necessity from insight.' Reason, then, cannot, in Hume's view, establish a priori connexions; and to

41 Elsewhere, in his letters, Kant attributes his awakening to his reflections on the antinomies. There is, however, no real contradiction here; what impressed Kant was the effect which Hume's skeptical conclusions, and especially the general implications of his treatment of the concept of cause, would have on the whole status of metaphysics, considered as a possible systematic body of knowledge.

illustrate the general implications of this thesis Kant might well have quoted the famous concluding paragraph of the *Enquiry concerning Human Understanding*:

When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume—of divinity or school metaphysics, for example—let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames, for it can contain nothing but sophistry and illusion, (XII. iii.)

In arriving at this skeptical conclusion, Kant thought, Hume was at least consistent, unlike Locke; if our concepts are derived from experience we cannot use them to transcend experience. But Hume's thinking was nevertheless defective. In the first place it was insufficiently generalized, since it dealt with the concepts of cause and effect only, and took no account of the other pure concepts of the understanding. Secondly, it stopped short in a skeptical position about the capacities of reason; having decided what reason could not do, it failed to take the next step of asking what reason can do. Hume had to some extent done this in the *Treatise of Human Nature*, unknown to Kant;⁴² but even if he had known this, it would not have caused him to alter his judgment:

He draws no distinction between the well-grounded claims of the understanding and the dialectical pretensions of reason, though it is indeed chiefly against the latter that his attacks are directed [A768/B796].

Thirdly, and more specifically, Hume failed properly to distinguish questions about the origin or justification of a belief that X caused Y from questions about the origin or justification of a belief that, whatever caused Y, it must have had some cause; in Kant's view, experience is necessary to know what caused any change to take place, but we know a priori (i.e. independently of experience) that something must have caused it. Kant's attempts to remedy these deficiencies of Hume's philosophy while retaining the essence of his insight into the problem are described in a passage of

42 Kant's knowledge of the relevant work of Hume was limited to the *Inquiry*, and to those few passages of the *Treatise* which had been quoted by James Beattie in his *Essay on the Nature and Immutability of Truth*. Unlike the *Enquiry* and the *Essay*, the *Treatise* had not at this time been translated into German, and Kant did not read English.

the *Prolegomena* which is worth quoting at some length.

So I first tried whether Hume's objection could not be represented universally, and I soon found that the concept of the connection of cause and effect is by no means the only one by which connections between things are thought a priori by the understanding; indeed that metaphysics consists of nothing else whatever. I tried to make certain of the number of these concepts, and when I had succeeded in doing this in the way I wished, namely from a single principle, I proceeded to the deduction of them. I was now assured that they are not, as Hume has feared, deduced from experience, but have their origin in pure understanding. This deduction, which seemed impossible to my sagacious predecessor, and had never even occurred to anyone except him, although everyone confidently used these concepts without asking on what their objective validity is grounded—this deduction, I say, was the most difficult thing that could ever be undertaken on behalf of metaphysics; and, worst of all, any metaphysics that there is anywhere at all could not give me the slightest help, because this deduction has first to establish the possibility of a metaphysics. Having succeeded in solving Hume's problem not merely in a special case, but with regard to the whole faculty of pure reason, I could take sure although still only slow steps towards determining at last the whole extent of pure reason, completely and according to universal principles, in its boundaries as well as in its content. This is what metaphysics needs in order to construct its system according to a sure plan. [*Prolegomena*. 4: 260.]

It is no use relying, as some of Hume's critics tried to do, on an appeal to common sense as a corrective to his skeptical and paradoxical conclusions. The value of common sense is confined to the making of judgments based on sense-experience, and it can contribute nothing to the discovery of universal a priori truths, which is the business of metaphysics. A thoroughgoing philosophical proof that we have a right to use such fundamental concepts as cause and substance must be provided if the hope of obtaining results from our metaphysical thinking is to be more than an illusion. This proof (or "deduction", in a rather special sense of the word) is in a way the central feature of the *Critique of Pure Reason*; but other features require consideration before we can usefully discuss it in detail.

Given, then, that the first step in the assessment of the claims of metaphysicians to have a knowledge of fundamental truths which is derived from reasoning alone is to examine the nature and structure of our reasoning powers, what form is this examination to take? It is clear that metaphysical knowledge, if there is such a thing, is not a kind of empirical knowledge. We do not discover that there is a God,

or that the soul is immortal, or that man possesses free will, by sensory observation; we cannot see, hear, or touch God, nor observe an immortal soul, nor can we observe a man's will operating freely (we can observe behavior which we take, rightly or wrongly, to be the effect of the free operation of a man's will, but this is not the same thing).

Metaphysical knowledge, then, if it exists, is a priori knowledge. Now there are three sciences which yield a priori knowledge, logic, mathematics, and physics; it may therefore be helpful, Kant suggests, to try to discover what it is that enables these inquiries to deserve the name of science.⁴³ Kant's answer to this question, to anticipate, is that they use a priori judgments in a way that can be philosophically justified, even if philosophers have not as yet given an entirely satisfactory justification of it. Logic, however, is a special case; for its principles, though a priori, are analytic, and can therefore be derived or justified quite simply from the law of contradiction. Mathematics and physics, however, yield synthetic (as opposed to analytic) a priori knowledge;⁴⁴ and since this is what metaphysics also would have to do if it were to yield any knowledge at all, the possibility of acquiring synthetic a priori knowledge of the required type may turn out to be a necessary condition of the possibility of any science. What happens, in fact, in the main body of the Critique is that Kant first (in the sections entitled "Transcendental Aesthetic" and "Transcendental Analytic") explains just how the possibility of synthetic a priori judgments enables us to establish the sciences of mathematics and physics on a firm

43 Kant takes it for granted that logic, mathematics, and physics are genuine sciences, but he explains very clearly why he thinks that metaphysics, as at present practiced, is not':

Whether the treatment of such knowledge as lies within the province of reason does or does not follow the secure path of a science, is easily to be determined from the outcome. For if after elaborate preparations, frequently renewed, it is brought to a stop immediately it nears its goal; if often it is compelled to retrace its steps and strike into some new line of approach; or again, if the various participants are unable to agree in any common plan of procedure, then we may rest assured that it is very far from having entered upon the secure path of a science, and is indeed a merely random groping. [Bvii.]

44 Physics contains empirical statements, of course, but it rests on fundamental a priori principles (basic laws of motion, for example, and the principle of conservation of energy).

foundation; subsequently (in the section entitled 'Transcendental Dialectic') he argues that, since theoretical reason cannot make valid synthetic a priori judgments which refer to objects outside the bounds of possible sense-experience, the traditional attempts of speculative metaphysics to solve the problems of God, freedom, and immortality are bound to fail. The synthetic a priori judgments of mathematics, although they do not describe our actual sense-experience —if they did they would not be a priori—do nevertheless refer to objects of possible experience and therefore escape the objections brought against speculative metaphysics.

3.3 Transition from Epistemology to Ontology

Hitherto we have been dealing with that division of transcendental logic which Kant calls "transcendental analytic". We now pass to that division of it which he calls "transcendental dialectic". In this he is concerned with the nature and validity of speculative philosophy and natural theology. This is supposed to be the special department of pure reason. The epistemological conclusions reached in the Transcendental Aesthetic and the Transcendental Analytic are now made the basis for a critique of the exercise of pure reason in the realm of ontology.

3.3.1 The ideas of reason

We have already seen that Kant distinguishes two fundamental cognitive faculties, namely intuition and thought, and holds that both are essential to knowledge. He now distinguishes two different faculties under the head of thought, and calls them understanding and reason. The categories and the pure principles which involve them belong to understanding, and have been dealt with in the Transcendental Analytic. Kant holds that there are other concepts peculiar to reason. He calls them ideas. The Transcendental Dialectic is concerned with reason and its ideas, and with the a priori arguments, involving these ideas, by which speculative philosophers and natural theologians profess to prove important ontological

propositions.

It must be understood that Kant is here using the words “reason” and “idea” in a special technical sense. The first thing is to see what he means by them, and how he supposes reason and its ideas to be related to understanding and its categories.

The essential point seems to be this. In ordinary practical thinking and in natural science we are continually presented with certain series of terms, which we seem to be able to pursue as far as we like in thought without coming to any natural end-term or limit. The two most important types of such series are the spatio-temporal and the causal. Each of these gives rise to two cases. (1a) Any extension or duration seems to be part of a larger extension or longer duration, and there seems to be no intrinsic maximum or upper limit. (1b) Any extension or duration seems to be composed of smaller extensions or shorter durations, and there seems to be no intrinsic minimum or lower limit. (2a) Every event seems to be the effect of some earlier event, and we seem never to reach back to any event which is a cause but not an effect. (2b) The existence of any substance seems to be intrinsically contingent. We may be able to say that it is a necessary consequence of the existence of some other substance, as e.g. the existence of a person depends on the previous existence of his parents. But the existence of these other substances is just as contingent intrinsically. We seem never to come to any substance whose existence is intrinsically necessary.

Now in ordinary life and natural science these various unending series give us no trouble. We follow each one just so far as we need for the purpose in hand, whilst we recognize that it could have been followed further in the same direction if necessary. But the human mind is so constituted that it cannot help reflecting philosophically on such series, and when it does so it finds them profoundly unsatisfactory. It cannot help thinking that they must in fact be completed somehow, that they must have first and last terms, and so on. Now Kant means by 'reason' that factor in our intellectual make-up which will not let us rest content

with the various unending series which the understanding presents to our notice, and which tries to think of each such series as somehow ended or completed in a characteristic way. By 'ideas of reason' he means the concepts of such last terms and completed wholes. Thus the notion of a first event, or the notion of the world as a completed spatio-temporal whole, is an idea of reason. So too is the notion of an event which is a cause of later events but not an effect of earlier events. So too is the notion of a perfectly simple substance with no parts. So too is the notion of a substance whose existence is intrinsically necessary.

Now not only are there such ideas. Speculative philosophers and natural theologians have tried to prove that they have actual application. It is alleged, e.g., by indeterminists that human volitions are events which have effects but are not completely determined by earlier events. Many philosophers have argued that the human soul must be a simple substance, and have tried to prove from this that it is immortal. Again, theologians regard God as an existent whose existence is intrinsically necessary; and they have put forward various arguments to prove that there must be an entity answering to this description. Thus speculative philosophy and natural theology are specially concerned with ideas of reason.

Now we know that no agreement has been reached on these subjects; so we may suspect that there is something wrong somewhere. Moreover, there is the following interesting fact to be noticed. If we compare and contrast mathematics, natural science, and speculative philosophy, we notice two things. (1) No one in his senses doubts that the principles and methods of mathematics are sound, that its results are certain, and that it continually advances. No one seriously doubts that the principles and methods of natural science are sound, that its results are at least highly probable and are corrigible if mistaken in detail, and that it continually advances. But there are no agreed results, and there is no steady advance in speculative philosophy and theology. (2) Yet speculative philosophy and theology use the same concepts and the same a priori principles as mathematics and natural science. They use the notions of space and time, cause and substance, and such

principles as the permanence of substance and the law of universal causation. It is therefore very important to discover and to state clearly the limits within which these concepts and principles are valid and fruitful, and outside which they have no valid use.

Kant claims to have done this in the *Transcendental Aesthetic* and the *Transcendental Analytic*. For he claims to have shown there that space, time, and the categories and the principles which involve them, cannot from their very nature be significantly used outside the range of possible human sense-perception. But he is not content with this. He is quite certain that the fallacies into which speculative philosophers and natural theologians have fallen are not simply chance mistakes which they might have avoided if they had been cleverer or luckier. They are intrinsic to the nature of the human mind. It is natural to any intelligent man to speculate on these topics, and, if he does so, to use arguments of this kind about them. Moreover there are negative as well as positive ontologists, and Kant holds that their arguments are no less fallacious. For instance, there are persons who claim to prove a priori that the world cannot have a beginning in time or be limited in space. There are persons who claim to prove that there cannot be simple substances, that the soul must come to an end with the death of the body, that there cannot be incompletely determined volitions, and that no such entity as the God of natural theology is possible. According to Kant their arguments are as baseless as those of their opponents and for the same reasons.

Now Kant always assumes as evident that men could not have a cognitive faculty, with a characteristic innate equipment, which served no useful purpose at all and was incapable of leading to anything but fallacies. He takes it for granted that there must be a right and a wrong use for the ideas of reason. He therefore devotes himself in the *Transcendental Dialectic* to a two-fold task. One is to show in detail that the use made of the ideas of reason by speculative philosophers and natural theologians, and by those who attempt to reach opposite conclusions by similar a priori arguments, is mistaken. The other is to discover and to state the right use of

the ideas of reason in human thinking.

3.3.2 The problems of speculative philosophy

Owing to Kant's passion for taking the divisions of formal logic as a clue to the divisions of transcendental philosophy, there is a good deal of artificiality in the arrangement of the material in the Transcendental Dialectic. It seems to me that in some cases what is essentially the same problem is discussed several times under different headings. The arguments for and against the proposition that there is an intrinsically necessary existent on which the existence of everything else depends are discussed twice over. For I cannot see any real difference between the fourth antinomy and the cosmological argument for the existence of God. However, the essential points are these.

(1) On Kant's view, the misuse of the ideas of reason leads to three bogus a priori sciences, which he calls rational cosmology, rational psychology, and speculative theology. Rational cosmology claims to prove a priori that the world did or that it did not have a beginning, that it is or that it is not limited in extent, that it is or that it is not composed of simple substances. Rational psychology claims to prove a priori that the human soul is a simple substance, that it survives the death of the body, and so on. Speculative theology claims to prove a priori, without using specifically ethical or religious premises and without appealing to any alleged divine revelation, that there is a being which exists of necessity and that the existence of everything else is derived from it.

(2) According to Kant one of the ideas of reason, viz. the idea of freedom, is in a quite peculiar position. In the *Critique of Pure Reason* we are given the a priori arguments for complete determinism and the a priori arguments for free will. But the solution offered by Kant is that both conclusions may be true. The same person may be completely determined in all his actions when considered as a phenomenon, but may be undetermined when considered as a noumenon. Now

in his ethical works Kant takes in the additional premise, which seems to him obvious, that a man is a moral agent, subject to obligations, and responsible for his deliberate actions. He argues that this entails that a man is free as regards his noumenal self, though completely determined as regards his phenomenal self. So we can conclude that the idea of freedom certainly does apply within the world of noumena.

- (3) As regards rational cosmology the results of Kant's discussion are purely destructive, and they are not supplemented by anything positive in the two later Critiques. The only positive feature is this. Kant tries to explain the useful part which is played in human thought by the proper use of these ideas of reason which lead to the fallacies of rational cosmology when misused.
- (4) As regards rational psychology the results of the discussion in the Transcendental Dialectic are again purely destructive. And the same can be said of speculative theology. Kant never went back on the conclusion that all such arguments for the simplicity and immortality of the soul or for the existence of God are simply fallacious. But he also concluded that any arguments of the same type against the simplicity or immortality of the soul or against the existence of God are equally fallacious. The a priori arguments for and against simply prove nothing and leave an open field. Now in the Critique of Practical Reason Kant argues that, when certain ethical facts are taken into account as premises, we have positive grounds for accepting the immortality of the soul and the existence of God. In the *Critique of Judgment*, which is largely concerned with the nature and validity of the notion of teleology, the question of the argument from design is reverted to and discussed at a considerably deeper level than in the *Critique of Pure Reason*.
- (5) The discussion of the soul in the Transcendental Dialectic must be taken along with Kant's many statements about the self in other parts of the *Critique of Pure Reason*, as well as with his doctrine in the ethical works. It is a very complicated

story indeed, and of very doubtful consistency.

CHAPTER 4

CONCLUSION

The conclusion of the Aesthetic of the first *Critique* is that we cannot conceive of objects without conceiving them as spatial or temporal. In the Analytic, Kant shows that there can be no object without the activity of the understanding: Kant endeavors to show it is impossible that a concept although itself neither contained in the concept of a possible experience nor consisting of elements of a possible experience should be produced completely a priori.[A95] He saw it as the task of transcendental methods to comprehend those fundamental facts by which a person proves himself or herself to be endowed with reason. To be conscious is to be conscious of an object. In other words, consciousness is intentional. But it is also to have synthesized the given representations under the concept of an object. In the very same act it is also to judge.

Thus Kant insists that consciousness therefore is synthesis. He believes that if we have an intuitive representation, this does not involve consciousness until such representation is brought under the unity of a concept, that is, of an objective judgment. Kant asks: What is assumed or presupposed whenever a content is posited as object of experience —as object for a subject? The objection he makes to philosophers like Descartes and Berkeley is that they doubt and deny, respectively, the existence of objects in space, while continuing to affirm their own existence. The counter argument says that to know our own existence as determined in time we must know objects in space. Kant believes that Transcendental idealism implies empirical realism. If you say that all objects of experience are transcendently ideal, you are saying that we can directly perceive both material and mental objects in our experience. This is so because both material and mental objects are just objects of possible experience. This supposedly follows from the claim that space and time are forms of our intuition and not properties of things independently of possible experience.

However, Kant has shown in the *Critique of Pure Reason* how the most general principle of natural science can be justified starting from the very conditions for the possibility of experience. For instance, the law of causality — everything that happens presupposes something upon which it follows according to rule—[A186] follows from the principle under which the temporal order of events will be established. For that reason the causal law is a synthetic judgment a priori which can however only be proved valid for objects of experience.

Here Kant asserts the possibility of experience quite independently of any particular actual experience. Thus, experience is not possible because we actually have experiences, but rather because it can be shown that the possibility of experience is necessary for reasons which are quite independent of the function of this presupposition in the proof of the causal law. Kant is concerned to explain the very possibility of any experience that yields knowledge.

Kant, to some extent, regards criticism as a preliminary to the further exercise of our rational faculties in knowing what is other than themselves and this point is established by his claim that in transcendental philosophy we are not directly concerned with knowledge of objects, but rather with the relation between an idea and an object insofar as it can be thought a priori. Kant is not concerned with the faculties of the mind but with functions which must be fulfilled if experience is to be possible. There is a sense in which Kant's transcendental reflection does not serve knowledge as such but rather grasping. What are grasped are the conditions of knowledge. These are grasped when their totality can be thought, that is to say, when a concept of the unconditioned is thought as the ground of all conditions. The significance of Kant's transcendental philosophy is two-fold. It is entirely devoid of any empirical content, whether of sensory objects or of mental faculties. Secondly, it is entirely concrete both in its intentions and its achievements. Kant is insistent that the formal aspects of experience are useless without the content provided in sensory intuition and however far our knowledge may be extended by the use of speculative reason, we can never go beyond the limits of possible

experience. Therefore, our transcendental horizon is always within the limits of possible experience.

The fundamental question that Kant sets out to answer in his *Critique of Pure Reason* is, What is it to think at all? What operations of the understanding are required for thinking in general and how are we thinking of anything that can be thought about?

I have shown that the *Critique* is not primarily concerned with the object of theoretical knowledge as such, but rather with the a priori principles on the one hand and the objects of knowledge on the other. The question Kant seeks to answer is: How is such a relation possible and upon what is it to be found? The philosophical investigation which tries to reveal the inner connection between the pure concepts of reason (the categories and the principles) by determining them to be related a priori to objects constitutes transcendental philosophy. Therefore, human knowledge comes about by an interaction of objective structures (the cognitive apparatus). It is in the light of this that Kant can say:

All principles of the pure understanding are nothing more than principles a priori of the possibility of experience, and to experience alone do all a priori synthetic propositions relate — indeed, their possibility itself rests entirely on this relation.
[B294]

Thus the question concerning the condition of the possibility of synthetic judgments a priori is the famous transcendental question.

Kant self-consciously refers to his new approach to philosophical method as a Copernican Revolution. He draws references to the fact that just as Copernicus radically changed the human perception of the movement of heavenly bodies, he intends to reverse the traditional understanding of the knowing process by uncovering the principles that can be known a priori in the realm of knowledge. To accomplish this he starts out by suggesting that whereas philosophers had always insisted that human knowledge must always conform to the objects of knowledge,

we might better be able to account for what is involved in the knowing process if we begin with the premise that objects must conform to the human capacity of knowing. This move by Kant was indeed epoch-making and revolutionary. It signifies a re-orientation in man's view of himself.

Geometric propositions cannot constitute an analysis of our concept of space, for they would be analytic a priori. By a process of elimination, they must therefore be explained not by our concepts but by our intuitions, that is to say, by our acquaintance with particulars. But empirical intuitions would not be able to explain how any propositions could be a priori. So only an a priori intuition can explain the possibility of geometry. But the only a priori acquaintance with particulars that we have is our knowledge of space and time. For these are not given to us, but are the forms under which we perceive all other particulars. Because Kant thinks that a priori knowledge is possible only when our knowledge determines its object rather than the other way around.

Human knowledge is limited to space and time. Kant believes that all our representations must be in space or time and we are a priori certain of the unity of space and time. Kant further argues that since all unity (the unity of space and time included) presupposes a synthesis which does not belong to the senses but to the understanding and its categories, everything that is to be represented as determined in space or in time must conform to the categories.

Kant argues that not only the unity of consciousness but also the universality and the unity of space and time are necessary to guarantee the universal validity of the categories. Thus we can know objects which correspond to the representation given to us through space and time and the objectivity of these objects is possible only by the categories.

Numerous philosophers have interpreted Kant's critical philosophy in different ways. Some have suggested that for Kant reality is supersensible and unknowable,

and all that is available to human consciousness is mere appearance. Others have argued that Kant postulated two distinct realms or entities, the realm of things in themselves and that of appearances. Thus the proponents of the two world theory argue that there is a fundamental dichotomy or contradiction in Kant's transcendental philosophy.

However, I have shown that there is no contradiction in Kant's critical philosophy. On the contrary I am convinced that the philosophical method introduced by Kant is the one that does the greatest justice to what is involved in the knowing process. It is generally agreed that we do not have one to one correspondence with the object of experience. Knowledge of object is always mediated. There are certain constraints placed on human reason based on the fact of human finitude.

Human beings are limited to space and time. The only way that an object can be given is through space and time. For space and time are not the properties of things given in sensory experience but are the forms under which we perceive all objects of experience. Whatever ability there is for the human person to comprehend any object of possible experience has to be within the a priori forms of space and time. Thus space and time are empirically real and transcendently ideal. There is an empirical side and a transcendental side to human consciousness.

To know our own existence as determined in time we must know objects in space. What is more, whatsoever appears on the horizon of human consciousness (both the mental and the physical) are phenomena for transcendental philosophical reflection. In critical philosophy we are dealing with both the empirical subject as experiencing and the empirical subject as experience and both form a unity. Thus transcendental reflection reveals that there is a unity to human experience. The distinction between the subject and the object takes place in the activity of reason exercising its transcendental function.

I believe that Kant's critical philosophy is fully concrete to the extent that he has

clearly demonstrated that inner experience is possible only on the assumption of outer experience.

APPENDIX

1. TÜRKÇE ÖZET

Kant'ın eleştirel felsefesinde bilginin neliği sorunu, modern felsefenin sınırlarının belirlenmesi açısından temel önemdedir. Ünlü filozofun felsefi duruşu, ele aldığı sorunların yeniliğinden çok, bu sorulara verdiği yanıtlar nedeniyle son derecede özgündür. Bu tezde, öncelikle tarihsel arkaplanı anlatılan bilginin neliği sorununa Kant'ın verdiği yanıtın yalnızca bilgi kuramı konusu olmakla kalmayıp aynı zamanda bilginin neliğinin ne demek olduğunu açıklayan bir ontolojinin yaratılmasına ciddi bir olasılık tanıdığını ileri sürülmektedir.

Felsefe tarihi boyunca filozofların ele almaktan geri durmadıkları konulardan birisi de bilginin neliği sorusudur. İnsan bilgisinin kaynağı, nasıl geliştiği, nasıl sınındığı gibi sorunlar, hemen her filozofun gündeminde yer tutmuştur. Tezin inceleme konusu açısından, Kant'ın kendisinden önceki filozoflardan yararlanma ya da onları eleştirel açıdan değerlendirmesi kaçınılmaz olmaktadır. Berkeley ile Hume bu bakımdan ilk akla gelen filozoflar olmaktadır. Kant'ın tüm felsefe yapıtlarına, Descartes ile başlatılan modern felsefede insan bilgisinin kaynağını akıl-ruh ikiliğine yaslayanların tanımlandığı rasyonalistlerle, Berkeley'in başı çektiği insan zihninden bağımsız bir dış dünyanın varolamayacağı tezinde billurlaşan empirisizmin sentezi olarak bakılabilir. Kant, ilk gençlik yıllarında Wolff'un felsefeye görüşlerini izleyen hocalarının etkisiyle Leibnizci çizgide bir rasyonalisttir. Ne var ki, Hume onu bu “dogmatik uykusundan” uyandıracaktır. David Hume'un nedensellik üzerine söyledikleri, Kant için bir dönüm noktası olacaktır. Doğada olagelen olayların nedenleri araştırılırken birtakım gerekçeler bulmak sözkonusu olayın açıklandığı anlamına gelir. Olay ile neden arasındaki ilgiyi Hume yalnızca bir düzenlilik olarak görmekten yanayken Kant bunlar arasında zorunlu bir bağ olduğunu öne sürer. Kant'ın bu eğilimi onun daha sonra apriori kavramında yaşamsal bir rol oynayacaktır. Berkeley'in idealizmini dogmatik olmakla eleştiren Kant, Hume'un keskin nedensellik eleştirisini neden-

sonuç ikilisi arasına soktuğu bir zorunluluk bağıyla dengeler. Böylelikle, Kopernikus'un astronomide yaptığı devrime eş değer bir devrimi felsefede yaptığını söyleyecektir Kant. Geçmiş yüzyıllarda insan bilgisinin doğaya uymak zorunda olduğu düşünülürdü; oysa artık doğanın insan bilgisine uymak durumunda olduğu anlaşılmaktadır. Edilgen değil etkin bir bilen özneyi savunan Kant'ın bu görüşlerine bilimsel çerçeveyi Newton'da bulduğunu görmekteyiz. Akademik kariyeri boyunca azımsanmayacak yoğunlukta fizik, matematik, jeoloji, astronomi konularına da ilgi duymuştur. Bu ilgi, evrenin oluşumu hakkındaki klasik kurama Laplace birlikte adını verecek denli profesyonel bir ilgilidir.

Kant'ın Newton ilgisi, onun bilimsel savlarının kanıtlanması ya da doğrulanması üzerine oturmaz. Daha çok, Newton'un özellikle Evrensel Yerçekimi Yasasıyla ifadesini bulan nesnellik anlayışı Kant'ın dikkatini çeker. Deyim yerindeyse, Newton'un söylediklerinin doğruluğundan çok, bu görüşleri ifade ederken izlediği yolun, üslubun kendisi daha önemlidir. *Principia*'yaya fizik kitabından çok matematik kitabı gözüyle bakılması biraz buradan kaynaklanmaktadır. Zaten fiziğe, “uygulamalı matematik” diye yaklaşan Kant için bu durum hiç de şaşırtıcı değildir. Newton'un benimsediği matematik yöntem Kant'a göre, “gelecekte bir bilim olarak ortaya çıkabilecek her metafiziğin” adeta dili olmalıdır. Dolayısıyla metafizik çerçeve Newtoncu bilim anlayışıyla temellendirilmiş olacaktır.

Yalnızca deneyimi bilginin kaynağı olarak görmenin, bilginin neliğini açıklamaya yetmeyeceğini ileri süren Kant, insan duyularını “aşan” konularda bilginin nasıl olanaklı olduğu sorunuyla ilgilenir. Temel bilimlerin inceleme konusu alanlarda genellikle sorun yoktur; zira bu alanlarda yapılacak deneylerle bilgiyi sınamak genellikle yeterli görülür. Ancak, tanrının varlığı, insan iradesi, ruhun ölümsüzlüğü, evrenin sınırsızlığı/sınırlılığı gibi bilimleri aşan ya da bilimlerin dışında kalan konularda felsefenin dillendireceği görüşlerin değer taşınması için insan duyularını aşan ancak bilgilerimizin esas olarak tanımlandığı biçimlendiği bir yaklaşıma gereksinim vardır. Aşkınsal kavramının bu noktada oynadığı kilit rol, metafiziğin alanına giren yukarıda anılan konularda Locke, Berkeley ve Hume'un

temsil ettiđi İngiliz Grgclđ'nn dřtđ amazı bertaraf etmesiyle iyice belirginlik kazanır. te yandan kimi idelerin dođuřtanlıđına inanan dogmatik idealizm ise insan bilgisinin tm kaynađının duyularla sınırlı olduđunu vurgulamasıyla eleřtirilir. Kant, felsefenin bu iki kkl temel kampının u noktalarını bu yolla dengelemesiyle gnmz felsefe dnyasını kalıcı olarak etkilemiř olmaktadır. İnsanın sınyabileceđi bilgilerin btnyle fenomen alanında kaldıđı apaktır. Ne var ki, deneyi ařan konularda devreye giren ařkınsallık kavramı dogmatik idealizme kaymadan genel ereyi birarada tutar. Etkin bilen zne, gemiřin edilgen bilen znesinin yerini almıřtır. Bu deđiřim, yalnızca bilgi kuramı aısından deđil, etik, estetik ve siyaset alanlarında da kaydadeđer sonular dođurmuřtur.

Kant'ın bu genel yaklařımı, Caird'in [Caird 1889, s. 10] bir analogisi kullanıldıđında daha anlařılır olacaktır. Kant, tıpkı Locke gibi, yıldızlara bakmaya kalkıřmadan nce onları geređince gzlemleyebilecek bir teleskop yapmanın yollarını aramaktadır. Gerek *Arı Usun Eleřtirisi*'inde gerekse *Prolegomena*'da bilginin ne olduđunu sylemeye giriřmeden nce bilginin nasıl olanaklı olduđunu gstermeye alıřır. Bylelikle, "gelecekte bir bilim olarak ortaya ıkabilecek" metafizik iin kapıyı araladıđını ne srmek abartı olmayacaktır. *Arı Usun Eleřtirisi* adlı yapıtının "Ařkınsal Estetik" ve "Ařkınsal Analitik" blmlerinde matematik ile fiziđin sađlam temellere yaslanmasını sađlayan sentetik apriori yargıları ele Kant, bu kadarının duyu deneyimlerimizi ařan konularda yetersiz olacađını dile getirmiřtir. Aynı alıřmanın "Ařkınsal Diyalektik" blmndeysen arı usun varlıkbilim alanındaki etkinliklerinin eleřtirisi iřte yukarıda anılan blmlerde elde edilen verilerle gerekleřtirilecektir.

Kant'ın felsefi kllyatına ařkınsal idealizm olarak bakıldıđında, bu kllyatın empirik gerekiliđe yolatıđı da grlecektir. Kuramsal bilgilerimizin dođası ve sınırları zerine Kant'ın yazdıklarının tmnn zellikle kendi zamanının hakim bilim anlayıřları olması bakımından Newtoncu evren grř ile Euklidesi geometrinin felsefedeki karřılıkları gibi grlebilir.

Ünlü filozofun günümüz felsefe çevreleri için hala önemini koruyan tarafı yapıtlarında dile gelmiş görüşlerin doğruluğundan çok bu görüşlere erişirken izlediği yöntemdir. Bugün hala canlı olan bu Kantçı nitelik, bilgi kuramından varlıkbilime geçişin başlıca yoludur. “Kant'ın Eleştirel Felsefesinde Bilginin Neliği” başlığını taşıyan bu tez sözkonusu geçişin dayanaklarını göstermiş olmak savındadır.

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