Kant's Theory of Knowledge: An Analytical Introduction

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OXFORD UNIVERSITY PRESS

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Preface

The parts of Kant's *Critique of Pure Reason* that present the constructive side of his theory of knowledge are the ones most commonly read by students and most intensely discussed by many Kant scholars. I refer especially to the Transcendental Aesthetic and the Transcendental Analytic, where Kant attempts to defend the possibility of human knowledge against the skeptical empiricism of David Hume without going back to the rationalism of a Leibniz, Descartes, or Spinoza. These sections of the *Critique* are also universally recognized to be among the most difficult of all philosophical writings, and students find them quite impenetrable if approached without the help of secondary sources. There are, of course, numerous scholarly works on the *Critique* that devote attention—indeed, often hundreds of pages—to these texts. All such works with which I am familiar are of extraordinarily high quality, in terms of both their philosophical merit and their depth of understanding of Kant's thought. As will be evident from this book, I have learned an enormous amount from several of these works, especially those of Robert Paul Wolff, Peter Strawson, Paul Guyer, Jonathan Bennett, James Van Cleve, and Henry Allison. These works, however, are in the main too difficult to be usable by all but graduate students and the most motivated and able undergraduates. There is also a number of books on the *Critique* written with student readers in mind. Some of these books are excellent, and it will be evident that I have benefited greatly from them as well, especially those of Justus Hartnack, T. E. Wilkerson, and W. H. Walsh. Yet there is not one of these books to which I would send a student and say: "Read this book alongside the *Critique*, and you will get a good understanding of what Kant was trying to show and of how he tried to show it." Rather, I would tell students to peruse these books in the way I myself have done: to look at each for insights into this or that part of what Kant says but not to expect a balanced analysis that both fits the text of the *Critique* and makes sense out of its complex arguments.

The aim of this book is to offer such an analysis for those crucial sections of the *Critique* where Kant presents the constructive side of his theory of knowledge.

This is an immodest aim and one that I could not hope to fulfill if I did not stand on the shoulders of giants. Drawing on their work, I shall try to show that the first half of the *Critique of Pure Reason* contains a sustained and challenging line of argument that is intended both to defend the possibility of common sense and scientific knowledge against a skeptical empiricism and to restrict human knowledge to the experienced or empirical world. I refer to the line of argument begun in the Transcendental Deduction of the Categories and continued in the Analogies of Experience. My analysis of this extended argument is offered primarily in chapters 4 and 5 on "the Central Argument of the Analytic," though its context is prepared in chapter 2 in the discussions of arguments about space and of Transcendental Idealism, and the argument is extended even further in the last section of chapter 7 on the Second Analogy. The analysis draws freely on and references the work of Wolff, Strawson, Guyer, and others, but it is intended to be as unified and student-friendly as possible, given the inherent difficulty of Kant's thought. I reconstruct the arguments in numbered steps and in such a way that their validity is obvious or can be verified by the simplest rules of sentential logic; my aim is to make Kant's ideas as accessible as possible without undue oversimplification.

In addition to the attempt to reconstruct what I call "the Central Argument of the Analytic," this book is intended to provide a balanced and reasonably detailed treatment of the main episodes in the first half of the *Critique* that relate less directly to the Central Argument, including the Metaphysical Deduction, the Schematism, the Axioms of Intuition, the Anticipations of Perception, the Third Analogy, and the Postulates of Empirical Thought. I also discuss in some depth two important sections, the First Analogy and the Refutation of Idealism, that go beyond and buttress the Central Argument, respectively.

Three unusual aspects of the book's organization call for some comment. First, in chapter 3, I deal with the Axioms of Intuition, Anticipations of Perception, and Postulates of Empirical Thought directly after introducing the forms of judgment and the categories with which Kant associates those principles. My reason for doing so is that although Kant himself discusses these principles after the Transcendental Deduction, they do not depend on it and are more naturally thought of in connection with the Metaphysical Deduction. This organizational strategy also allows me to go straight from the Transcendental Deduction to the Analogies, thereby making the unity of the Central Argument more evident. Second and perhaps more controversially, I discuss the second edition version of the Transcendental Deduction (the "B-Deduction") only after presenting in some depth the idea of the two time-orders that Kant does not expound until later, in the Analogies. I do so because, for reasons that can be given only in the course of the analysis itself, I believe that the B-Deduction adds little to the first-edition version of the Deduction unless it is interpreted in light of the doctrine of the Analogies. Third, I discuss the Schematism at the end of the book, in the appendix. Like some other commentators, I find the Schematism especially opaque, but I think it makes more sense when interpreted in light of what comes before and after it in the *Critique*. Each of these organizational points is signposted within the text, and readers who might initially wish to pursue only the most central line of argument are given suggestions on what sections can be passed over and re-

turned to later. As another aid to student readers, I indicate at the start of the endnotes to each chapter what sections or sections of the *Critique* that chapter should be read with.

It is my hope that this book will be useful to undergraduate students who are reading Kant in courses on the history of modern philosophy and in more narrowly focused courses on Kant, to graduate students, and to those of my peers who are not Kant specialists but who have an interest in teaching and studying Kant. I also hope that some features of the book, such as the manner in which I show how the Transcendental Deduction dovetails with the Analogies, my interpretation of Transcendental Idealism, my analysis of the First Analogy, and my elaboration and defense of Guyer's reconstruction of the Refutation of Idealism, will be of interest to Kant scholars.

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Acknowledgments and a Note on the Translation

I am deeply grateful to a number of colleagues, friends, and students for comments, criticisms, suggestions, and encouragement. Professor Kenneth G. Lucey read the entire manuscript and provided extremely valuable comments on every chapter, including both philosophical issues and matters of style and presentation. His detailed critique led me to make innumerable improvements and to rewrite much of chapter 8. It has made this book more solid and readable than it would otherwise have been. Professor Derk Pereboom generously provided very insightful, thoughtful, and knowing comments on the entire manuscript as well. His comments led me to correct several inaccuracies and to make significant improvements in the treatment of several crucial points. Professor James Van Cleve provided very helpful and probing comments on chapter 9, which led me to make several improvements. Professor Richard Mancuso of the physics department at SUNY Brockport kindly answered some physics questions bearing on chapter 8. The students in my Spring 2003 Kant course at SUNY Brockport, especially Melissa Birmingham, Andrew Leoni, and Chris Plochocki, made comments and wrote papers that led me to make some very significant improvements as well. Needless to say, I alone am responsible for whatever shortcomings remain.

My editor at Oxford University Press, Peter Ohlin, was unfailingly helpful with various matters that came up as I was working on the manuscript. I am also grateful to SUNY Brockport for course releases and for a sabbatical leave in Fall 2002 that made it possible for me to complete this work in a timely fashion, despite my teaching and administrative obligations. Last, but not least, I wish to express my gratitude to Alvina Greenberg, not only for her loving support and wise counsel, but also for expertly preparing beautiful camera-ready copies of the diagrams in this book.

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All quotations from Kant's *Critique of Pure Reason* are taken from *Immanuel Kant's Critique of Pure Reason*, trans. by Norman Kemp Smith (New York: St. Martin, 1965). A note is in order to explain my use of the venerable Kemp Smith translation rather than the more recent translations of Guyer-Wood or Pluhar. The main reason, aside from long habituation and familiarity, is that I prefer "knowledge" to "cognition" as a translation of *Erkenntnis*. For in the constructive part of the *Critique of Pure Reason* with which this book is primarily concerned, the success that Kant is interested in concerns knowledge that certain things (or propositions) are true (e.g., that there are objects which must be conceived as being other than the self, that every observable event has a cause, that all substances that can be known to coexist in space on the basis of nonsimultaneous perceptions causally interact, etc.), not mere "cognition" with respect to these things, whatever exactly that would be. Also, Kant presents his problem as that of showing that certain *judgments* or *principles* constitute knowledge; he seeks "synthetic *a priori*" knowledge, not just "synthetic *a priori*" cognition (whatever that would be). As for cases in which Kant uses *Erkenntnis* in the plural or for nonpropositional cases, Kemp Smith's "modes of knowledge" is not significantly inferior to "cognitions." Of course, there is also the passage where Kemp Smith has Kant speak of "false" knowledge (A 58/B 83), but it seems quite unnecessary to adopt an across-the-board translation of *Erkenntnis* as "cognition" in order to avoid an isolated oxymoron. Finally, I doubt that non–German-reading readers of this book who use the Guyer-Wood or the Pluhar translation will find the book any less useful than those who use Kemp Smith. I have, of course, used the standard A/B pagination—"A" for page references to the first German edition of the *Critique of Pure Reason*, "B" for page references to the second edition—which is found in the margins of the pages of the Kemp Smith, Guyer-Wood, and Pluhar translations.

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Introduction

1.1 Kant, Rationalism, and Empiricism

1.1.1 Kant as Synthesizer of Rationalism and Empiricism

Kant is sometimes introduced as the philosopher who synthesized rationalism and empiricism. Of course, this cannot mean that Kant simply adopted the central views of both the rationalists and the empiricists, for even within each of these schools of thought there are major disagreements. For example, among the rationalists, Descartes held that there are many purely thinking substances and one extended substance that makes up the entire physical world; Spinoza held that there is only one substance, which is both thinking and extended and may be called either "God" or "Nature"; and Leibniz held that there exist infinitely many nonextended substances called "monads" and that extension is merely an appearance; among the empiricists, Locke held that matter exists and we can know that it does, Berkeley held that matter does not exist, and Hume held that we cannot know whether matter exists or not though we cannot help believing that it does. Furthermore, there are fundamental disagreements between the two schools of thought. For example, the rationalists held that humans possess some ideas that are not derived from any experience, whereas the empiricists held that all of our ideas must be derived from experience. Thus, in order for the claim that Kant synthesized rationalism and empiricism to be coherent, it would have to mean that he selected certain doctrines of the rationalists and certain doctrines of the empiricists and put them together into his own philosophy.

But even this qualified version of the statement that Kant synthesized rationalism and empiricism is very inadequate, for Kant did not simply conjoin certain rationalist and empiricist views. Rather, he profoundly transformed those views themselves, in such a way that their meaning and implications were deeply altered. The result was a system of philosophy, called "the Critical Philosophy,"

which is very different from any simple merger of rationalist and empiricist views. In the final analysis, Kant's Critical Philosophy turns its back on both rationalism and empiricism. Nevertheless, it combines elements of both. It can truly be said of Kant's philosophy that it *rejects* both rationalism and empiricism yet *incorporates* elements of rationalist and empiricist thought. What, then, does Kant reject and what does he incorporate from each?

1.1.2 Kant's Relation to Rationalism

In spite of the differences between them, the rationalists all held that humans can have knowledge of a nonempirical reality—a realm of things that straightforwardly exist but yet cannot be perceived by the senses or accessed by introspection. They all maintained that we can have knowledge of certain entities, such as God, immortal souls, and substances underlying things' properties, that are not objects of any possible experience, that is, that can never be presented to us either in sense perception or in introspection. Kant rejects this claim. The main *destructive* aim of his *Critique of Pure Reason* is to show that there can be no human knowledge at all of any nonempirical reality. In this respect, Kant is as much of an empiricist as David Hume.

But although Kant holds that humans can have no knowledge about any nonempirical reality, he does not deny that the existence of such a reality is a legitimate topic of human concern. On the contrary, he believes that there are three specific topics of rationalist metaphysics that are legitimate, important, and even inevitable topics of human concern. These are God, human immortality, and human freedom. Kant's position with respect to these topics is, briefly, this: although we cannot *know* whether God exists, whether there is an immortal human soul, or whether humans have free will, we may *believe* in God, immortality, and freedom. Furthermore, for purposes of action and morality, we *ought* to believe in them despite the fact that there is no way we can know whether these beliefs are true. Kant's position, then, is that whereas we must admit that our *knowledge* extends only as far as the limits of experience, still there are reasons of an essentially moral sort for believing in God, immortality, and freedom. As he puts it in a famous sentence, "I have . . . found it necessary to deny *knowledge*, in order to make room for *faith*" (B xxx).

1.1.3 Kant's Relation to Empiricism

The fundamental principle of empiricism is that all of our ideas must come from experience, that is, from sense perception or the introspective awareness of our own states of mind. Kant does not accept this principle, for he sees the development of empiricism from Locke to Hume, and especially Hume's work, as showing that the principle leads to skepticism—to the impossibility, not only of rationalist metaphysics, but also of scientific knowledge and everyday, "commonsense" knowledge. Now the main *constructive* aim of the *Critique of Pure Reason* is to uphold the possibility of scientific and commonsense knowledge against Hume's skeptical empiricism.[1] To this end, Kant holds that there are certain special con-

cepts that do not originate in experience but have what he calls "objective validity." Kant names these concepts "Pure Concepts" or "Pure Categories of the Understanding" (he gives a complete list, or "table," of these at A 80/B 106). The two most important pure concepts or categories are substance and causality.

The adjective "pure" expresses Kant's view that these special concepts are not in any way derived from experience. They are not, for example, copies of any sense impressions; nor do they come from experience in any other manner. To register this fact, Kant frequently also calls them "*a priori*" concepts. Yet, the pure concepts or categories do yield knowledge, provided that one extremely important condition is satisfied.

What is this condition? It is that the subject matter of the knowledge must fall within the range of possible experience. To put it in Kant's way, the pure concepts can yield knowledge only when they are *applied* to actual or possible experience. Thus Kant's position, summarized in figure 1–1, is that although the pure concepts are not derived from experience, they can contribute to our knowledge only when they are applied to experience. This means that the pure concepts can never yield any metaphysical knowledge, in the rationalist sense of "metaphysical." The pure concept of causality, for example, cannot be used to prove the existence of God because God is not a possible object of experience (sense perception or introspection), but a pure concept has its legitimate application only within the field of possible experience.

Why does Kant hold that the pure concepts or categories yield knowledge only when they are applied to actual or possible experience? He holds this view because of one of the fundamental principles of his philosophy, a principle that has to do with the nature of any thinking, judging, or asserting that contains or conveys knowledge. This is that such thinking requires two things: (a) concepts and (b) something to which the concepts are applied. To think, judge, or assert in a way that embodies or expresses knowledge is, for Kant, to apply a concept to something. The only exception to this principle is thinking that simply relates one concept to another, as in the judgments "roundness is a shape" or "red is a color." But thinking that embodies knowledge beyond knowledge of mere conceptual relations, or judgments that affirm something about how the world is, must conform to the principle. For example, if I think, judge, or assert, "this is a desk," this requires (a) that I possess the concept of a desk and (b) that there exist something to which I can apply my concept. Now I can apply a concept to something X only if X is in some manner presented or given to me. But things can only be presented

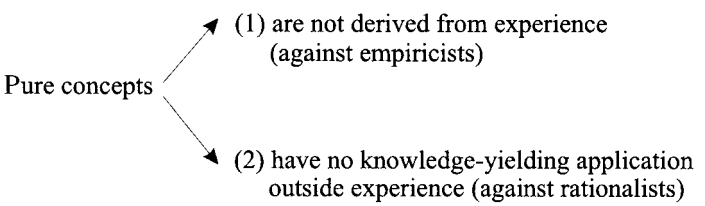

FIGURE 1–1

or given to human beings in experience, that is, in sense perception (which Kant calls "outer sense") or introspection (which Kant calls "inner sense"). Kant sometimes suggests that there could be nonhuman knowers to whom things are presented in some way other than sense perception or introspection. But he maintains that at least for humans, awareness of things can consist only in their being perceived by the senses or accessed by introspection. Therefore, at least for humans, the knowledge-yielding application of concepts, which is the same thing as thinking or judging that expresses knowledge, is limited to actual or possible experience—to what can be given in what Kant calls "sensibility." This implies that we can have knowledge only of what falls within the range of possible experience.

I close this subsection with some terminological points. Kant frequently uses the term "intuition"; this is his most general word for the items to which concepts are applied. Thus intuitions include items presented in sense perception and introspection (including imagined items); they include everything that is presented or given to a conscious subject. This use of the term "intuition" is completely different from the use of that term in Descartes or in Locke, where intuition refers to the grasp of a logical or conceptual connection between ideas or concepts. Kant also uses the term "pure intuition." A pure intuition, for Kant, is a form that the items presented in sense perception and introspection must take. As we will see in Chapter 2, he argues that there are two such pure intuitions or (as he also calls them) "pure forms of sensible intuition," namely space and time (A 22/B 36).

1.2 Kant's Reduction of His Agenda to Its Simplest Form

1.2.1 Kant's Simplifying Question

As my remarks about Kant's relation to empiricism and to rationalism have shown, Kant has a twofold aim in the *Critique of Pure Reason:* (1) constructively, to defend the possibility of scientific and everyday ("commonsense") knowledge against Hume's skeptical empiricism, and (2) destructively, to show that traditional metaphysics is impossible. In the "Introduction" to the *Critique*, he tries to reduce this basic agenda to its simplest form: "How are *a priori* synthetic judgments possible?" As he puts it:

> Much is already gained if we can bring a number of investigations under the formula of a single problem. For we not only lighten our own task, by defining it accurately, but make it easier for others, who would test our results, to judge whether we have succeeded in what we set out to do. Now the proper problem of pure reason is . . . : How are *a priori* synthetic judgments possible? (B 19)

In the next chapter, I shall argue that there is reason to doubt that Kant's project can really be encapsulated in this famous question. In section 2.4, I shall introduce an alternative way, proposed by P. F. Strawson, of formulating Kant's basic question, and in 2.5, I shall adopt a modified version of Strawson's proposal. But to appreciate the advantages of such alternatives, it is necessary first to understand Kant's own way of conceiving and formulating his task. Therefore, throughout the present chapter and in the first three sections of the next chapter, I shall take Kant

at his word and assume that his problem can be reduced to the question of how synthetic *a priori* judgments are possible. Our immediate task, then, is to see why Kant thinks that his problem can be reduced to this question.

To understand Kant's question, we need to see how he works up to it. He starts by making two important distinctions: (1) the *a priori/a posteriori* distinction; (2) the analytic/synthetic distinction. In the next two subsections, I explain these distinctions by presenting definitions of the terms "*a priori*," "*a posteriori*," "analytic," and "synthetic" and noting some ways in which Kant's own usage relates to these definitions. Then, I show how Kant uses the distinctions to focus the disagreement between rationalism and empiricism and to introduce his own Critical position.

1.2.2 A Priori *and* A Posteriori

The *a priori/a posteriori* distinction is essentially an epistemological one; it pertains to two different kinds of knowledge. According to the most common use of these terms, "*a priori*" means "known prior to experience," or better (since the priority in question is not a matter of coming earlier in time), "known independently of experience," whereas "*a posteriori*" means "known posterior to experience," or better (since the posteriority in question is not a matter of coming later in time), "known dependently on experience."[2] And indeed, Kant's own basic notion of *a priori* is 'independent of experience,' and his basic notion of *a posteriori* is 'dependent on experience.' As we shall see, these basic notions allow Kant to apply the terms "*a priori*" and "*a posteriori*" to a wide array of things, including knowledge, judgments, propositions, concepts, and intuitions. Today, however, philosophers often define these terms as they apply to propositions, and this is the way Kant himself uses the term "*a priori*" in his simplifying question, except that he applies it to "judgments" instead of "propositions." But as Stefan Körner suggests, we can think of a judgment simply as "a proposition asserted by somebody."[3] So we may, without distorting Kant's meaning, begin by defining the terms "*a priori*" and "*a posteriori*" as they apply to propositions or judgments.

Letting *p* stand for any judgment or proposition, we can define the term "*a priori*" as follows:

D1: *p* is *a priori* = *df p* can be known independently of experience.

For example, the statements "1 + 1 = 2" and "No one can be his or her own parent" are classified as *a priori* because they can be known to be true independently of experience: one need not make any observations or perform any experiments to know that these statements are true. Although an *a priori* proposition must be knowable independently of experience, it may *also* be known by experience. For example, although mathematical statements are *a priori*, many of them are complex and so known independently of experience (by abstract mathematical reasoning) only by mathematicians who can grasp their proofs, whereas other people may know them on the basis of experience—for example, by hearing of their truth from mathematicians or reading that they are true in mathematics books. Thus, "can be known independently of experience" does not mean "cannot be known

by experience"; rather, it means roughly "can be known without experience." To see why this is still only roughly right, note that for a person to know even a simple *a priori* statement like "1 + 1 = 2" or "No one can be his or her own parent," some experience is required, namely, the experience needed to learn the meanings of terms—of "1," "+," "2," "parent," and so on. Thus, if "knowable independently of experience" meant "knowable without *any* experience whatsoever," then no statement would be *a priori* because a statement cannot be known to be true by a person unless that person understands the statement, but a person cannot understand a statement unless he or she understands its constituent terms, and those terms cannot be understood (at least by human beings) unless their meanings have been learned through various appropriate experiences. Therefore, a more accurate interpretation of the phrase "can be known independently of experience" in D1 is this: "can be known without experience, except for the experience required to learn the meanings of *p*'s constituent terms."

By contrast, there are many statements that cannot be known in this way. Consider for example the statement "Some people are over six feet tall." Even after one fully understands (the meanings of the terms in) this statement, one may be completely in the dark as to whether the statement is true or false: only experience can determine this. Such statements are classified as *a posteriori* or, synonymously, as "empirical" statements. "Snow is white" and "There are nine planets" are other examples of *a posteriori* or empirical statements. Thus the term "*a posteriori*" is also an epistemological one, which contrasts directly with "*a priori*." As applied again to propositions or judgments, it can be defined this way:

D2: *p* is *a posteriori* (empirical) = *df p* can be known only by experience.

The phrase "can be known only by experience" requires some clarification, for it does not mean, as one might think, "can be known just by experience" or "can be known by experience alone." At least some *a posteriori* statements require reasoning, as well as experience, in order to be known; for example, our knowledge of scientific laws rests not only on observations but also on complex inferences or extrapolations from those observations. More fundamentally, many philosophers would hold that no statement is knowable *just* by experience because of a point made by none other than Kant. This is the point, already mentioned, that thinking that embodies knowledge requires both concepts and something to which concepts are applied. This point implies that all knowledge requires conceptualization, which is a form of thought that philosophers often contrast with the raw data of experience. Thus, instead of meaning "can be known just by experience," the phrase "can be known only by experience" in D2 means this: "cannot be known without experience, other than or in addition to the experience needed to learn the meanings of *p*'s constituent terms."

As I have said, Kant's pivotal notion of the *a priori* as "independent of experience" makes it possible for him to apply the term "*a priori*" to a wide range of things, including not only judgments and propositions but also knowledge, concepts, and intuitions. The "independence" in question means something different as it applies to each of these things. As applied to judgments and propositions, it means that an *a priori* judgment or proposition can be *justified* without appealing

to particular facts that are known by experience or observation. To see this more clearly, notice that when I said (in the second paragraph of this subsection) that

> the statements "1 + 1 = 2" and "No one can be his or her own parent" are classified as *a priori* because they can be known to be true independently of experience: one need not make any observations or perform any experiments to know that these statements are true

I could have said instead that

> the statements "1 + 1 = 2" and "No one can be his or her own parent" are classified as *a priori* because they can be *justifiably believed* to be true independently of experience: one need not make any observations or perform any experiments to be *justified in believing* that these statements are true.[4]

Likewise, as applied to knowledge—at least to "propositional" knowledge or "knowledge-that" (something is the case)—the independence lies again in the fact that *a priori* knowledge does not rest on experience in a *justificatory* sense of "rest on." As applied to concepts, however, the independence means that the concepts are not derived from experience. Finally, as applied to intuitions, it means that the intuitions in question (space and time, as Kant will show) are not obtained by sense perception or introspection. Much more will be said in later chapters about Kant's notion of *a priori* as it applies to concepts and to intuitions.

Kant also applies the terms "*a posteriori*" and "empirical" not just to judgments and propositions but also to knowledge, concepts, and intuitions. When he does so, his meaning contrasts directly with calling these items *a priori*. An *a posteriori* proposition or judgment is one that can be justified only by appealing to particular facts that are known by experience or observation. A *posteriori* knowledge rests on experience in a *justificatory* sense of "rest on." An *a posteriori* or empirical concept is one that is derived from experience, like the concept of a cat. An *a posteriori* or empirical intuition is one obtained by sense perception or introspection, like the sight of a cat or the feeling of peacefulness.

Kant offers us a criterion for identifying *a priori* knowledge, propositions, and judgments: necessity and strict universality (B 3–4). To see how this criterion is supposed to work, consider the proposition 'every even number is divisible by 2.' Its truth is necessary because there cannot be any counterexamples, and strictly universal because there not only *are not* but there *cannot be* any exceptions to it (B 4). Is this criterion redundant? Perhaps not because strict universality seems not to work for singular *a priori* propositions, like '9 is an odd number.' But this proposition is still necessarily true. So it seems that strict universality entails necessity, but not vice versa, and that necessity is the fundamental criterion.

Kant's adoption of necessity as the fundamental criterion of the *a priori* accords with his often-repeated and important claim that no proposition that rests on experience can be necessary. As he puts it:

> Experience tells us, indeed, what is, but not that it must necessarily be so, and not otherwise. (A 1)

> Experience teaches that a thing is so and so, but not that it cannot be otherwise. (B 3)

> That a body is extended is a proposition that holds *a priori* and is not empirical. For, before appealing to experience, I have already in the concept of body all the conditions required for my judgment. I have only to extract from it, in accordance with the principle of contradiction, the required predicate, and in so doing can at the same time become conscious of the necessity of the judgment—and that is what experience could never have taught me. (B 11–12)[5]

> Mathematical propositions . . . are always judgments *a priori*, not empirical; because they carry with them necessity, which cannot be derived from experience. (B 14–15)

Some contemporary philosophers, following Saul Kripke, would say that scientific statements about "natural kinds," like "water is H^2O," are *a posteriori* yet necessary.[6] This raises complex issues that I cannot explore here. Suffice it to say that a follower of Kant would not accept this view but would hold instead that the statement "water is H^2O" was once an empirical hypothesis that has now become a definition: that no substance that was not H^2O would count as being water, no matter how much like water it was, is a result of the way we use the term "water" rather than of some metaphysical necessity. This need not be taken to mean that "water is H^2O" was once contingent and then became necessary; it is compatible with saying that the statement is, if true, then necessarily true. For saying that it was once an empirical hypothesis need not mean that it was once true but contingent, but only that it was once not known to be true.

1.2.3 Analytic and Synthetic

Whereas the notions of *a priori* and *a posteriori* are epistemological ones having to do with the way in which a proposition can be known, the notions of analytic and synthetic are semantical ones, having to do with what makes a proposition true or false. To avoid misrepresenting the current philosophical landscape, I should first note that the analytic/synthetic distinction is by no means uncontroversial. Some contemporary philosophers, notably W. V. Quine, have questioned the tenability of the distinction; others defend it.[7] My purpose here, however, is to explain how the distinction enters into Kant's attempt to reduce his agenda to its simplest form. So, I shall not enter into the controversy concerning the tenability of the analytic/synthetic distinction, but I shall rather assume that the distinction is tenable and expound it as it is usually understood by those who accept it.

The basic definition of an analytic statement is this:

> D3: *p* is analytic = *df p* is true solely in virtue of the meanings of its constituent terms.

An example is "all bachelors are unmarried eligible men."[8] Notice that although this statement is not couched in the form of a definition—it does not start with "a bachelor is . . . " or "the term 'bachelor' means . . . "—it is really a definition since "bachelor" just means "unmarried eligible man." This is why the statement is true solely in virtue of the meanings of its constituent terms. Definitions, then, are one type of analytic statement.

Another type of analytic statement consists of what we may call "conceptual truths." These are not definitions, but they are still true in virtue of meanings. An example is "something cannot be both round and square." Although not a definition of either "round" or "square," this statement is still true in virtue of those terms' meanings, or of the *concepts* 'round' and 'square,' for "round" is defined partly in terms of "having no angles," and "square" is defined in terms of "rectangular," which in turn is defined in terms of "having four angles."

The third and most fundamental type of analytic statement consists of statements that are true in virtue of their logical form. Two examples are "either it is raining or it is not raining" and "it is not both raining and not raining." To see why these two statements are true because of their logical forms, we can extract their respective forms, as follows:

either *p* or *not p*

not (*p* and *not p*)

It is obvious that any statement having one of these forms, no matter what specific sentence one substitutes for *p*, must be true. This is why the two statements about raining, as well as any other statements obtained by substituting a given statement for *p* in either form, can be said to be "true because of their logical form." You may ask: why are such statements analytic? The answer is that, like definitions and conceptual truths, they are true solely in virtue of the meanings of their constituent terms. Specifically, our sample statements are true in virtue of the meanings of the terms "either-or," "not," and "and"—terms that give the statements their logical form and that are called "logical connectives."

Some contemporary philosophers would define analyticity in a slightly different way from that given in D3. They would say that an analytic statement is one whose truth depends solely on logical laws and definitions. To illustrate, consider the statement "all bachelors are unmarried." Since "bachelor" is defined as "unmarried eligible man," substituting synonyms for synonyms in this statement yields the statement "all unmarried eligible men are unmarried." But this statement has the form "All ABC's are C's," or, in the symbolism of modern logic, the form "(x)[(Fx . Gx. Hx) ⊃ Hx]"—forms that express laws of logic.

There is an important relationship between analyticity and contradiction: the negation (denial) of an analytic statement is always a contradiction, and conversely the negation of a contradiction is always an analytic statement. Thus, for example, the negation of "all bachelors are unmarried eligible men" is "some bachelors are not unmarried eligible men." But since "bachelor" means "unmarried eligible man," the negated statement says that some unmarried eligible men are not unmarried eligible men, which is a contradiction (since it says that some men are both eligible and unmarried and not eligible and unmarried). Conversely, the negation of "some bachelors are not unmarried eligible men" is "all bachelors are unmarried eligible men," which is analytic. Similar considerations apply to the other examples I have given. Thus, for instance, the negation of "either *p* or *not p*" is "neither *p* nor *not p*," which means the same as "*not p* and (also) *not not p*," which means simply "*not p* and *p*," which is, of course, a contradiction. Conversely, the negation of "*not p* and *p*" is "*not* (*not p* and *p*)," which is analytic.