A Priori and a Posteriori Knowledge in Kant

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ARTICLE SUMMARY

This entry focuses on Kant's distinction between a priori and a posteriori knowledge. It examines the distinction's importance to Kant's theoretical philosophy, especially its relevance to Kant's key notion of synthetic a priori judgment. Topics covered include a priori judgments, space and time, mathematics, categories, the unity of consciousness, and Kant's principles of pure physics.

The distinction between a priori and a posteriori knowledge was made by Immanuel Kant (1724–1804) in the introduction to his *Critique of Pure Reason* (1781/87, the so-called A and B editions) and *Prolegomena to Any Future Metaphysics* (§5; 1783). This epistemological distinction characterizes how a claim is justified and, specifically, its relation to experience. A priori (from the Latin, "what comes before") knowledge, which is defined as necessary and universal (Kant [1781] 1998, A2-4/B2-4), is independent of all experience, and "pure." A posteriori (from the Latin, "what comes after") cognition, which is contingent and lacks true universality, is not pure but is instead merely "borrowed" from experience or known empirically.

This distinction is crucial to Kant's project since synthetic a priori judgments count as a priori judgments. (Examples of synthetic a priori judgments are: "Everything that happens has a cause" and mathematical claims such as "7+5=12" and "A straight line between two points is the shortest.") Because metaphysics consists largely in synthetic a priori judgments and since Kant does not consider a posteriori knowledge to be especially problematic, his analysis of the distinction focuses more on the a priori. "Transcendental" cognition is occupied with the mode of cognition of objects insofar as it is possible a priori (Kant [1781] 1998, A 11-12/B 25). Employing the term in numerous contexts, Kant applies "a priori" to universal and necessary knowledge, judgments, intuitions (space and time), concepts (the "categories"), the unity of consciousness, and physical principles. Before Kant, philosophers such as Antoine Arnauld (1612–1694) and Gottfried Wilhelm Leibniz (1646–1716) had also made the a priori/a posteriori distinction, albeit each in different ways.

In the preface to the *Critique*, Kant formulates his main question as "What and how much can understanding and reason cognize free of experience?" (Kant [1781] 1998, A xvii). In the introduction, he takes his first step toward an answer by substituting the formula "How are synthetic *a priori* judgments possible?" Two closely connected sets of distinctions lie behind this central question. First, Kant distinguishes propositions that are "a priori" from "a posteriori" judgments. A priori judgments have the twin characteristics of necessity and universality, neither of which can be found in conclusions from experience.

According to his other (perhaps more original) distinction, a judgment is "analytic" if what is thought in the predicate-concept has already been thought in the subject-concept; a judgment is "synthetic" if this condition does not obtain. Thus, "All bodies are extended" is analytic because the idea of a body is of something that is extended or occupies space; "All bodies have weight" is synthetic because the notion of weight is not included in the notion of body. In analytic judgments, the connection of subject and predicate is "thought through identity"; or, as Kant puts it elsewhere in the *Critique*, the highest principle of all analytic judgments is the principle of contradiction.

So far, Kant's analytic/synthetic distinction is simply a more elaborate version of David Hume's (1711–1776) division of propositions into those that assert "relations of ideas" and those that express "matters of fact," a version inferior to Hume's in that it is formally tied to statements of the subject-predicate form. But Kant gives the distinction a fresh twist by asserting that there are judgments that are both synthetic *and* a priori, thus cutting across the usual classifications. Kant considers "How are synthetic propositions a priori possible?" to be the general problem of his transcendental philosophy (Kant [1781] 1998, B 19, 73). He knows that they are in fact possible since sciences such as mathematics and physics appeal to synthetic a priori propositions. The question about the possibility of synthetic a priori propositions has immense importance to Kant since (definitions aside) he considers nearly all propositions of pure mathematics to be synthetic and a priori; he also thinks it obvious that "natural science (physics) contains within itself synthetic a priori judgments as principles" (Kant [1781] 1998, B 17). He thinks that the very existence of these judgments shows that reason (broadly understood) has special cognitive powers of its own.

Kant's distinction between the a priori and a posteriori is not as simple as he thinks, however. He tries to clarify it by explaining that the first class of judgments have the characteristics of necessity and universality, which serve as criteria that are "inseparable from one another." He fails to notice, however, that the necessity that belongs to synthetic a priori judgments must on his own account differ from that which characterizes analytic judgments. Analytic judgments are, or rather claim to be, logically necessary; to deny a true analytic judgment would be, if Kant is correct, to dispute the validity of the law of contradiction. But though no synthetic judgment can contravene the laws of logic, none can be true by virtue of these laws and of meanings alone. Accordingly, if any synthetic judgment is to be described as necessary, it must be necessary in some further sense.

Kant recognizes in practice that the synthetic a priori judgments he takes to be valid have their own special kind of necessity. In his own terminology, they are "transcendentally" necessary; necessary, that is to say, if there is to be the knowledge and experience there actually is. But he would have done better to acknowledge the ambiguity in his term "a priori" from the outset. It would also have been helpful had he given some elucidation of his statement that, when a judgment is thought with strict universality, "no exception is allowed to be possible." He cannot mean that no exception is *logically* possible, or every a priori judgment would be analytic. But he does not, at least in the early stages of his argument, make clear what other sort of possibility he has in mind.

Space and Time

In the *Critique*, Kant proposes to delineate the entire cognitive powers of the mind and so clarify the background against which synthetic a priori judgments are made. This leads him to undertake an inquiry first into the a priori elements involved in sensory knowledge (the "Transcendental Aesthetic") and then into the corresponding elements involved in thought (the "Transcendental Logic").

It seems at first sight contradictory to say that there might be a priori elements involved in sensory knowledge. According to an old philosophical and psychological tradition, sensation is an essentially passive affair; the senses present data and one has no choice but to accept it. Kant was quite ready to agree to this as a general account of sensation. But he was persuaded that there are some features of sensory experience that cannot be accepted as empirically given. Kant identifies these features through an examination of the ideas of space and time. These ideas, he argues, represent the form of experience rather than its matter; through them, one structures the sensory given in the very act of sensing it. To establish this position Kant appeals to a variety of considerations.

First, he insists on the fundamental and ubiquitous character of space and time, as opposed to features like color and sound. Spatial predicates apply to whatever one knows through the five senses, temporal predicates both to these and to the immediately experienced flow of one's inner life. Second, he argues that one cannot acquire the ideas of space and time by reflecting on what is empirically given. Some philosophers had said that one comes by the idea of space by noticing such things as that one object is adjacent to another, and that one comes by the idea of time by observing the way in which events succeed, are simultaneous with, or precede one another. Kant points out that the very description of such situations presupposes familiarity with space and time as such. For to know what is meant by saying that one thing is "next to" or "on top of" another one needs to appreciate how the things in question are situated in a wider spatial framework, which in turn falls within a yet wider spatial system, until one comes to the thought of space as a whole. Particular spaces are not instances of space, but limitations of it, and space is accordingly a special sort of particular. A similar argument applies to time. Adding to these two points the fact that one knows certain things to be necessarily true of perceived space and time (space has only three dimensions; different times are not simultaneous but successive), Kant infers that the ideas of space and time are not merely "intuitions," but "a priori intuitions." That is to say, they are a priori forms of sensibility and thus distinct from the a posteriori sensation of material content.

Mathematics

Kant finds confirmation for his view of space and time in the thought that this view alone can explain the possibility of pure and applied mathematics. Pure geometry is possible because one is able to "construct," or show the real possibility of, its concepts in pure intuition. An experiment conducted in imagination shows at once that a triangle is a real spatial possibility, whereas a figure bounded by two straight lines is not. Applied geometry is possible because whatever is apprehended by the senses must necessarily accord with the forms of sensibility. Kant attempts at various points in his writings to extend his doctrine of the importance of pure intuition for mathematical thinking from geometry to the other parts of mathematics, but he is less convincing on this point. His reasons for saying that "7 + 5 = 12" is a synthetic proposition were sharply and influentially criticized by Gottlob Frege (1848–1925). Kant's account of algebra (Kant [1781] 1998, B 745, 762) is so sketchy as to be virtually unintelligible. Kant tries to say that in algebra there is a "symbolic construction" corresponding to the "ostensive construction" of the concepts of geometry, but it is not in the least clear what this has to do with the pure intuition of either space or time.

Categories, Principles, and the Unity of Consciousness

Categories such as causality, community, substance, unity, and existence are concepts of a higher order than empirical concepts; like the a priori forms of sensibility, space, and time, they have to do with the a priori "form" of experience rather than its matter (Kant [1781] 1998, A 20/ B 34). The possession of a priori categories ("pure concepts of the understanding") accordingly supplies no knowledge of particular things; categories are fertile only when brought to bear on empirical data.

In the first half of the "Analytic" Kant undertook to produce a "transcendental deduction" (a general proof of validity) of the twelve categories. In the second half of the "Analytic" he gives a series of demonstrations of the synthetic a priori "principles" that rest on individual categories. The categories are divided, for this and other purposes, into four groups: quantity, quality, relation, and modality. The four sets of corresponding principles are labeled the axioms of intuition, anticipations of perception, analogies of experience, and postulates of empirical thought in general. These principles of pure "physics" would count as synthetic a priori knowledge, according to Kant. For instance, the statement that every event has a cause carries strict necessity with it and therefore cannot be grounded on an inductive survey of empirical evidence. Kant argues for the necessary operation of the concepts of cause and reciprocity (causal interaction). He believes that without the presumption of sequences that are regular (determined by a rule) there could be no knowledge of objective succession.

Kant calls his notion of the unity of consciousness (the "I think") that must accompany all representations a nonempirical (pure), a priori representation (Kant [1781] 1998, A107, B131-32, A 341/B399).

Influence

Hermann Cohen (1842–1918) sought to defend a Kantian theory of apriority by describing three distinct levels of the a priori, and Gottlob Frege emphasized the justification of a priori judgments. In recent decades, philosophers such as Saul Kripke (1940–) and Philip Kitcher (1947–) discussed the possibility that there were necessary a posteriori truths and contingent a priori truths. The proposition that "the standard meter bar in Paris is one meter long"—an example of the latter—would be knowable a priori since the bar defines the length of the meter, yet it also seems possible for it to be false since it could become damaged or altered. More recently, Michael Friedman (1947–) has revived Hans Reichenbach's (1891–1953) quasi-Kantian notion of the "relativized" a priori.

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