

KANT ON  
THE NATIVISTIC,  
ACTIVE STRUCTURING OF EXPERIENCE,  
AND THE IMPOSSIBILITY  
OF A SCIENCE OF PSYCHOLOGY

IMMANUEL KANT (1724–1804), German philosopher, was the most influential of all thinkers in his field for the period from the last decades of the eighteenth century through several decades of the nineteenth century. He saw his task as that of critically analyzing the philosophy of the past, which led him to call his system the "critical philosophy." The task of philosophers who came after him was to adopt, oppose, or reinterpret Kant: they could not ignore him. In part, this was because of the sheer breadth of his views, touching as they do on almost all issues of philosophy. In short compass, we will deal only with those two or three issues most pertinent to psychology. From the perspective of present interests, he offers a systematic inventory of the powers and contents of the human mind with a view of achieving theoretical certainty. He took a stand on empiricism that was both original and disconcerting.

That all our knowledge begins with experience there can be no doubt. For how is it possible that the faculty of cognition should be awakened into exercise otherwise than by means of objects which affect our senses, and partly of themselves produce representations, partly rouse our powers of understanding into activity, to compare, to connect, or to separate these, and so to convert the raw material of our sensuous impressions into a knowledge of objects, which is called experience? In respect of time, therefore, no knowledge of ours is antecedent to experience, but begins with it.

But, though all our knowledge begins with experience, it by no means follows that all arises out of experience. For, on the contrary, it is quite possible that our empirical knowledge is a compound of that which we receive through impressions, and that which the faculty of cognition

supplies from itself (sensuous impressions giving merely the *occasion*), an addition which we cannot distinguish from the original element given by sense, till long practice has made us attentive to, and skillful in separating it. It is, therefore, a question which requires close investigation, and not to be answered at first sight, whether there exists a knowledge altogether independent of experience, and even of all sensuous impressions? Knowledge of this kind is called *a priori*, in contradistinction to empirical knowledge, which has its sources *a posteriori*, that is, in experience.

But the expression, "*a priori*," is not as yet definite enough adequately to indicate the whole meaning of the question above started. For, in speaking of knowledge which has its sources in experience, we are wont to say, that this or that may be known *a priori*, because we do not derive this knowledge immediately from experience, but from a general rule, which, however, we have itself borrowed from experience. Thus, if a man undermined his house, we say, "he might know *a priori* that it would have fallen"; that is, he needed not to have waited for the experience that it did actually fall. But still, *a priori*, he could not know even this much. For, that bodies are heavy, and, consequently, that they fall when their supports are taken away, must have been known to him previously, by means of experience.

By the term "*knowledge a priori*," therefore, we shall in the sequel understand, not such as is independent of this or that kind of experience, but such as is absolutely so of *all* experience. Opposed to this is empirical knowledge, or that which is possible only *a posteriori*, that is, through experience. Knowledge *a priori* is either pure or impure. Pure knowledge *a priori* is that with which no empirical element is mixed up. For example, the proposition, "Every change has a cause," is a proposition *a priori*, but impure, because change is a conception which can only be derived from experience.<sup>1</sup>

Implicitly, Kant was saying that he agreed with Locke and the other empiricists that all knowledge begins with experience, but added that it does not necessarily follow that all knowledge *arises* from experience. The mind itself supplies some of this knowledge, *a priori*. There were *a priori* elements in all experiences.

Now that he stated his general position, Kant proceeded to analyze space in these terms. In the next excerpt, the term "transcendental" refers to that which was not in experience but implied by experience, while "aesthetics" is used, not for beauty or related concepts, but for knowledge that is immediate and based on sensory experience.

In whatsoever mode, or by whatsoever means, our knowledge may relate to objects, it is at least quite clear that the only manner in which it immediately relates to them is by means of an intuition. To this as the indispensable groundwork, all thought points. But an intuition can take place only in so far as the object is given to us. This, again, is only possible, to man at least, on condition that the object affect the mind in a certain manner. The capacity for receiving representations (receptivity) through the mode in which we are affected by objects, is called *sensibility*. By means of sensibility, therefore, objects are given to us, and it alone furnishes us with intuitions; by the understanding they are *thought*, and from it arise conceptions. But all thought must directly, or indirectly, by means of certain signs, relate ultimately to intuitions; consequently, with us, to sensibility, because in no other way can an object be given to us.

The effect of an object upon the faculty of representation, so far as we are affected by the said object, is sensation. That sort of intuition which relates to an object by means of sensation is called an empirical intuition. The undetermined object of an empirical intuition is called *phenomenon*. That which in the phenomenon corresponds to the sensation, I term its *matter*; but that which effects that the content of the phenomenon can be arranged under certain relations, I call its *form*. But that in which our sensations are merely arranged, and by which they are susceptible of assuming a certain form, cannot be itself sensation. It is, then, the matter of all phenomena that is given to us *a posteriori*; the form must lie ready *a priori* for them in the mind, and consequently can be regarded separately from all sensation.

I call all representations *pure*, in the transcendental meaning of the word, wherein nothing is met with that belongs to sensation. And accordingly we find existing in the mind *a priori*, the pure form of sensuous intuitions in general, in which all the manifold content of the phenomenal world is arranged and viewed under certain relations. This pure form of sensibility I shall call *pure intuition*. Thus, if I take away from our representation of a body all that the understanding thinks as belonging to it, as substance, force, divisibility, etc., and also whatever belongs to sensation, as impenetrability, hardness, colour, etc.; yet there is still something left us from this empirical intuition, namely, extension and shape. These belong to pure intuition, which exists *a priori* in the mind, as a mere form of sensibility, and without any real object of the senses or any sensation.

The science of all the principles of sensibility *a priori*, I call *transcendental aesthetic*. There must, then, be such a science forming the first part of the transcendental doctrine of elements, in contradistinction

to that part which contains the principles of pure thought, and which is called *transcendental logic*.

In the science of transcendental aesthetic accordingly, we shall first isolate sensibility or the sensuous faculty, by separating from it all that is annexed to its perceptions by the conceptions of understanding, so that nothing be left but empirical intuition. In the next place we shall take away from this intuition all that belongs to sensation, so that nothing may remain but pure intuition, and the mere form of phenomena, which is all that the sensibility can afford *a priori*. From this investigation it will be found that there are two pure forms of sensuous intuition, as principles of knowledge *a priori*, namely, space and time. To the consideration of these we shall now proceed.

## SECTION I. OF SPACE

### 2. *Metaphysical Exposition of this Conception*

By means of the external sense (a property of the mind), we represent to ourselves objects as without us, and these all in space. Therein alone are their shape, dimensions, and relations to each other determined or determinable. The internal sense, by means of which the mind contemplates itself or its internal state, gives, indeed, no intuition of the soul as an object; yet there is nevertheless a determinate form, under which alone the contemplation of our internal state is possible, so that all which relates to the inward determinations of the mind is represented in relations of time. Of time we cannot have any external intuition, any more than we can have an internal intuition of space. What then are time and space? Are they real existences? Or, are they merely relations or determinations of things, such, however, as would equally belong to these things in themselves, though they should never become objects of intuition; or, are they such as belong only to the form of intuition, and consequently to the subjective constitution of the mind, without which these predicates of time and space could not be attached to any object? In order to become informed on these points, we shall first give an exposition of the conception of space. By exposition, I mean the clear, though not detailed, representation of that which belongs to a conception; and an exposition is metaphysical when it contains that which represents the conception as given *a priori*.

1. Space is not a conception which has been derived from outward experiences. For, in order that certain sensations may relate to something without me (that is, to something which occupies a different part of space from that in which I am); in like manner, in order that I may

present them not merely as without, of, or near to each other, but also in separate places, the representation of space must already exist as a foundation. Consequently, the representation of space cannot be borrowed from the relations of external phenomena through experience; but, on the contrary, this external experience is itself only possible through the said antecedent representation.

2. Space is a necessary representation *a priori*, which serves for the foundation of all external intuitions. We never can imagine or make a representation to ourselves of the non-existence of space, though we may easily enough think that no objects are found in it. It must, therefore, be considered as the condition of the possibility of phenomena, and by no means as a determination dependent on them, and is a representation *a priori*, which necessarily supplies the basis for external phenomena.

3. Space is no discursive, or as we say, general conception of the relations of things, but a pure intuition. For, in the first place, we can only represent to ourselves one space, and, when we talk of divers spaces, we mean only parts of one and the same space. Moreover, these parts cannot antecede this one all-embracing space, as the component parts from which the aggregate can be made up, but can be cogitated only as existing in it. Space is essentially one, and multiplicity in it, consequently the general notion of spaces, of this or that space, depends solely upon limitations. Hence it follows that an *a priori* intuition (which is not empirical) lies at the root of all our conceptions of space. Thus, moreover, the principles of geometry—for example, that “in a triangle, two sides together are greater than the third,” are never deduced from general conceptions of line and triangle, but from intuition, and this is *a priori*, with apodictic certainty.

4. Space is represented as an infinite given quantity. Now every conception must indeed be considered as a representation which is contained in an infinite multitude of different possible representations. Which, therefore, comprises these under itself; but no conception, as such, can be so conceived, as if it contained within itself an infinite multitude of representations. Nevertheless, space is so conceived of, for all parts of space are equally capable of being produced to infinity. Consequently, the original representation of space is an intuition *a priori*, and not a conception.

### 3. *Transcendental Exposition of the Conception of Space*

By a transcendental exposition, I mean the explanation of a conception, as a principle, whence can be discerned the possibility of other synthet-

ical *a priori* cognitions. For this purpose, it is requisite, firstly, that such cognitions do really flow from the given conception; and, secondly, that the said cognitions are only possible under the presupposition of a given mode of explaining this conception.

Geometry is a science which determines the properties of space synthetically, and yet *a priori*. What, then, must be our representation of space, in order that such a cognition of it may be possible? It must be originally intuition, for from a mere conception, no propositions can be deduced which go out beyond the conception, and yet this happens in geometry. (Introd. V.) But this intuition must be found in the mind *a priori*, that is, before any perception of objects, consequently must be pure, not empirical, intuition. For geometrical principles are always apodictic, that is, united with the consciousness of their necessity, as: “Space has only three dimensions.” But propositions of this kind cannot be empirical judgments, nor conclusions from them. (Introd. II.) Now, how can an external intuition anterior to objects themselves, and in which our conception of objects can be determined *a priori*, exist in the human mind? Obviously not otherwise than in so far as it has its seat in the subject only, as the *formal* capacity of the subject’s being affected by objects, and thereby of obtaining immediate representation, that is, intuition; consequently, only as the *form of the external sense* in general.

Thus it is only by means of our explanation that the possibility of geometry, as a synthetical science *a priori*, becomes comprehensible. Every mode of explanation which does not show us this possibility, although in appearance it may be similar to ours, can with the utmost certainty be distinguished from it by these marks.

#### 4. *Conclusions from the foregoing Conceptions*

(a) Space does not represent any property of objects as things in themselves, nor does it represent them in their relations to each other; in other words, space does not represent to us any determination of objects such as attaches to the objects themselves, and would remain, even though all subjective conditions of the intuition were abstracted. For neither absolute nor relative determinations of objects can be intuited prior to the existence of the things to which they belong, and therefore no *a priori*.

(b) Space is nothing else than the form of all phenomena of the external sense, that is, the subjective condition of the sensibility, under which alone external intuition is possible. Now, because the receptivity or capacity of the subject to be affected by objects necessarily antecedes all

intuitions of these objects, it is easily understood how the form of all phenomena can be given in the mind previous to all actual perceptions, therefore *a priori*, and how it, as a pure intuition, in which all objects must be determined, can contain principles of the relations of these objects prior to all experience.

It is therefore from the human point of view only that we can speak of space, extended objects, etc. If we depart from the subjective condition, under which alone we can obtain external intuition, or, in other words, by means of which we are affected by objects, the representation of space has no meaning whatsoever. This predicate is only applicable to things in so far as they appear to us, that is, are objects of sensibility. The constant form of this receptivity, which we call sensibility, is a necessary condition of all relations in which objects can be intuited as existing without us, and when abstraction of these objects is made, is a pure intuition, to which we give the name of space. It is clear that we cannot make the special conditions of sensibility into conditions of the possibility of things, but only of the possibility of their existence as far as they are phenomena. And so we may correctly say that space contains all which can appear to us externally, but not all things considered as things in themselves, be they intuited or not, or by whatsoever subject one will. As to the intuitions of other thinking beings, we cannot judge whether they are or are not bound by the same conditions which jimit our own intuition, and which for us are universally valid. If we join the limitation of a judgment to the conception of the subject, then the judgement will possess unconditioned validity. For example, the proposition, "All objects are beside each other in space," is valid only under the limitation that these things are taken as objects of our sensuous intuition. But if I join the condition to the conception and say, "All things, as external phenomena, are beside each other in space," then the rule is valid universally, and without any limitation. Our expositions, consequently, teach the *reality* (i.e., the objective validity) of space in regard of all which can be presented to us externally as object, and at the same time also the *ideality* of space in regard to objects when they are considered by means of reason as things in themselves, that is, without reference to the constitution of our sensibility. We maintain, therefore, the *empirical reality* of space in regard to all possible external experience, although we must admit its *transcendental ideality*; in other words, that it is nothing, so soon as we withdraw the condition upon which the possibility of all experience depends and look upon space as something that belongs to things in themselves.<sup>2</sup>

He followed with a parallel discussion of time, again arguing that just as with space, time does not inhere in reality but is a subjective pattern of pure perception. Primary qualities were again reduced to subjective phenomena. Thus, he provides the basis for nativistic psychological theories of perception or modifications thereof, such as those found in modern Gestalt theory (p. 305).

He was not advocating Cartesian innate ideas, but, rather, the view that the individual is born with the active ability to order the experience of space. He was also opposing the view of the British empiricists, particularly Hume and Hartley, that the mind is composed of elements mechanically linked together by the process of association. To Kant, the mind actively organizes the raw data of experience.

Kant saw part of his task as providing an alternative to Hume's conclusions that causality was neither self-evident nor capable of logical demonstration and that neither self-identity nor physical objects could be demonstrated to exist. His solution was to demonstrate independent *a priori* rational principles that, once established, would make it possible to arrive inductively at general laws that Hume had argued was impossible.

This was done in a discussion of the implicit principles that underlie experience, the "categories." Too long and detailed to make excerpting possible, a summary will have to suffice. The categories are universal, necessary, and independent of sense experience and include unity, reality, totality and, most relevant to present discussion, causality. While causality is not empirically derivable as Hume had argued, it can be demonstrated on *a priori* principles.

In view of the tremendous influence of his views, both during the age in which he lived and for years thereafter, it is important to isolate what he thought about the possibility of a science of psychology. He did this in a setting which simultaneously posed the same question for chemistry, that, at time of writing (1786), was only at its beginnings, resembling more a collection of recipes useful in practical work than it did the science that it was to become.

But the empirical doctrine of the soul must always remain yet even further removed than chemistry from the rank of what may be called a natural science proper. This is because mathematics is inapplicable to the phenomena of the internal sense and their laws, unless one might want to take into consideration merely the law of continuity in the flow of this sense's internal changes. But the extension of cognition so attained would bear much the same relation to the extension of cognition which mathematics provides for the doctrine of body, as the doctrine of the properties of the straight line bears to the whole of geometry. The reason for the limitation on this extension of cognition lies in the fact that the pure internal intuition in which the soul's phenomena are to be con-

structed is time, which has only one dimension. But not even as a systematic art of analysis or as an experimental doctrine can the empirical doctrine of the soul ever approach chemistry, because in it the manifold of internal observation is separated only by mere thought, but cannot be kept separate and be connected again at will; still less does another thinking subject submit to our investigations in such a way as to be conformable to our purposes, and even the observation itself alters and distorts the state of the object observed. It can, therefore, never become anything more than a historical (and as such, as much as possible) systematic natural doctrine of the internal sense, i.e., a natural description of the soul, but not a science of the soul, nor even a psychological experimental doctrine.<sup>3</sup>

Psychology, he was saying, lacked a mathematical base that is essential for all sciences. While it has the dimension of time, it has no spatial dimension, since mind is not spatial. And experiment is not possible without both dimensions. While still a part of philosophy, psychology could not hope to be a separate science. In denying the possibility of the experiments and the use of mathematics in the study of the mind, Kant's pronouncement effectively helped to delay the appearance of psychology as an experimental science.

## HERBART ON IDEAS AS FORCES, THE THRESHOLD OF CONSCIOUSNESS, THE ESSENTIAL NATURE OF MATHEMATICS, AND THE SIGNIFICANCE OF APPERCEPTION

JOHANN FRIEDRICH HERBART (1776-1841), German philosopher, was led by his metaphysical assumptions to regard the philosophy of mind as the mechanics of the mind. Emerging from this analogy was the view that concepts, that is, actions or ideas as we would call them, are forces, that there is a threshold, at which level ideas appear in consciousness, and that the study of mind necessitates mathematical treatment. Many of his most important contributions to psychological thinking were given preliminary discussion in the opening chapters of his *Textbook of Psychology*, first published in 1816:

10. Concepts become forces when they resist one another. This resistance occurs when two or more opposed concepts encounter one another.

At first let us take this proposition as simply as possible. In this connection, therefore, we shall not think of complex nor of compound concepts of any kind whatever; nor of such as indicate an object with several characteristics, neither of anything in time nor space, but of entirely simple concepts or sensations—e.g., red, blue, sour, sweet, etc. It is not our purpose to consider the general notions of the above-mentioned sensations, but to consider such representations as may result from an instantaneous act of sense-perception.

Again, the question concerning the origin of the sensations mentioned does not belong here, much less has the discussion to do with the consideration of anything else that might have previously existed or occurred in the soul.

The proposition as it stands is that opposed concepts resist one another. Concepts that are not opposed—e.g., a tone and a color—may