# METAPHYSICS: AN INDUCTIVE SCIENCE

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Metaphysics is inquiry into the nature of existence. It includes inquiry into the categories, or universal characteristics, of existence, and into any general kinds of existence that may be discovered, and then into their natures and interrelations.

Metaphysics is a science when and because it begins with problems that are commonly recognizable human problems that are communicable and shareable. It is a science when and because the problems with which it deals can be dealt with by means of the scientific method and attitude. It is a science because metaphysicians have been able to formulate descriptive and explanatory hypotheses proposed for testing. It is a science because some of its hypotheses have been tested, and are being tested, by appeals to how they work in explaining the world as experienced.

## SCIENTIFIC METHOD

Five steps, often distinguished as essential to scientific method, may be reviewed relative to metaphysics as an inductive science.

*1. Awareness of a problem.* No problem, no science. No problem, no metaphysics as a science. Metaphysical problems include, for example, inquiries into the nature of change, time, space, substance, relations and causation, things or characteristics that are present in the experiences of all persons. When a person wonders, "What is time?" he has taken a first step in becoming a metaphysician.

*2. Examining the problem.* If the problem is "What is time?" then an inquirer will observe examples of time as many as he can and as many kinds as he can, to discover, if he can, any common characteristics of all observed examples. To the extent that all such examples are alike in some respects, he has a basis for inductive generalization. To the extent that they differ, he does not.

He may observe many different kinds of time, such as physical, chemical, astronomical (days, months, years), geographical (tides, seasons), biological (plants, annuals vs. perennials; animals, average lifespans; persons, stages in lifetime growths), physiological (heartbeats, breaths, digestion, menstration, walking), psychological (seemly rapid or slow), social (times for working, eating, paydays), cultural (clocks, calendars, train schedules, computers), historical (epochs, dynasties), political (elections, taxes), etc.

If all of the kinds of time that he observes appear to involve duration, events, before and after, succession, and direction, he will have elements for a descriptive hypothesis about the nature of time. If, further, all of the



kinds of time that he observes also occur in space, he will have evidence for proposing that space also is a condition of the existence of time. If, further, all observations about existence involve awareness of time and space, then he will have evidence for proposing that time and space are universal characteristics of existence.

*3. Proposing hypotheses.* Metaphysical hypotheses may be descriptive or explanatory. One may describe how all of several different elements in all kinds of time appear to relate to each other. One may attempt to explain the nature of time by observing what other kinds of things or characteristics appear to be conditions of the existence of time, especially any apparent causes of time, i.e., how things or characteristics function as causes of time, and, further, any seeming effects of time, i.e., how time functions as a cause of other things or characteristics.

When evidence for universal hypotheses is incomplete, one may propose a working hypothesis which states more than is observed, for the purpose of gaining more evidence through other observations guided by that hypothesis.

A scholarly metaphysician will study hypotheses proposed by other metaphysicians and consider whether or not, or to what extent, they fit his own observations. When he becomes aware that others have already proposed a hypothesis that he considers adequate or promising, he may be spared efforts required for proposing his own working hypothesis. That is, he may use some hypotheses proposed by others as his own working hypotheses. As critical, he will at least examine and test hypotheses proposed by others and reject them only when they fail to meet his tests.

*4. Testing hypotheses.* Several kinds of tests are available for testing metaphysical hypotheses.

*a. Mentally.* Hypotheses may be tested mentally to discover internal inconsistencies if any are present. Discovery of internal contradiction is sufficient reason for discarding a hypothesis as stated. All metaphysical hypotheses are testable in this way.

*b. Adequacy.* Hypotheses may be tested relative to different kinds of adequacy:

(1) Does the hypothesis fit the problem? That is, are all of the apparently essential features of the problem taken into account by the hypothesis? If not, then the hypothesis is inadequate in this respect. If a metaphysician is entertaining two or more hypotheses, one of which more adequately accounts for all factors in the problem than the others do, then he will regard this hypothesis as superior in this respect.

(2) Does the hypothesis account for all of different kinds or variations of a category under consideration? That is, if there are many different kinds of time, for example, does the hypothesis cover all of the kinds that have been observed? If not, the hypothesis is inadequate. If a metaphysician is considering two or more hypothesis, one of which accounts for all or more of the kinds than the others do, then he will regard this hypothesis as superior in this respect.

(3) Does the hypothesis fit together with hypotheses about other kinds of existence or about other categories of existence? That is, for example, if one hypothesis about the nature of time fits more adequately with accepted hypotheses about the nature of space than others do, then a metaphysician will regard this one as superior in this respect. If hypotheses, especially accepted hypotheses about the nature of several other kinds of existence or characteristics of existence are available, then any hypothesis about the nature of time, for example, which fits more adequately with accepted hypotheses about more other kinds of existence or categories of existence, such as change, substance, relations and causation, than others do will be considered superior in this respect.

(4) Does the hypothesis fit together with hypotheses about problems dealt with by other sciences (both other philosophical sciences, such as epistemology, axiology, logic, and other physical, biological, psychological and social sciences)? That is, for example, when an hypothesis about the nature of time fits more adequately with more conclusions tentatively accepted by more other sciences than do other hypotheses, a metaphysician will regard it as superior in this respect.

(5) Does the hypothesis fit together with, i.e., support and receive support from, any systemic hypothesis about the nature of existence as a whole? That is, when an hypothesis about the nature of existence as a whole, i.e., of all of the major general kinds of existence and all of the universal characteristics of existence and how they fit together as a comprehensive whole, is available and either tentatively accepted as a working hypothesis or commonly accepted as sufficiently demonstrated to warrant common acceptance, then if one hypothesis about the nature of time, for example, fits more adequately with such comprehensive hypothesis than do other hypotheses about the nature of time, a metaphysician will regard it as superior in this respect.

*c. Predictability*. Hypotheses may be tested relative to predictability. True hypotheses about the nature of things should enable one to predict what one will observe on future occasions relative to them. That is, a hypothesis about the nature of time, for example, claiming that time involves both events and duration will, if it is true, enable one on future



occasions to observe that new times, or new kinds of time, will embody both events and duration. Hypotheses which do enable successful predictions are said to work. Working hypotheses enabling one to make more, and more kinds, of successful predictions are said to work better. A metaphysician working with two or more hypotheses who finds that one hypothesis works better than others in the sense that it enables him to predict more, and more kinds, of future observations successfully will regard it as superior in this respect.

*d. Communicability*. Hypotheses may be tested relative to communicability. Not only should a good metaphysical hypothesis be understandable, when communicated, at least by other metaphysicians and especially by metaphysicians specializing in the particular problem which the hypothesis about, but it should also be testable by them relative to all of the ways outlined above. Although some philosophies of science may require only a single communication and a single corroborating test for an hypothesis to be regarded, testwise, as "scientific," generally speaking, the more scientific colleagues, metaphysical and otherwise, to whom a hypothesis is communicated and by whom it is tested successfully, the more superior it will be regarded in this respect.

Unfortunately, the fortunes of the communicability of hypotheses vary greatly with numerous factors (such as the presence, availability and interestedness of numbers of colleagues, the availability of time, money and other factors conducive to communication to and testing by others, the profitableness of accepting or rejecting the hypothesis by the proposer or by others, the esteem, respect or authority attributed to the proposer by communicants and to some communicants and testers by other communicants, the availability of instruments for communication and testing, and support for or challenge of vested interests resulting from communication and successful testing). Although I do not regard spread of acquaintance with or acceptance of a hypothesis as in any way necessarily conclusive (False doctrines have been widely propagated for centuries. "Fifty million Frenchmen can't be wrong"), nevertheless, a metaphysician who finds that a hypothesis which is communicated to and successfully tested by more other metaphysicians will regard it as superior in this respect.

*e. Crucial experiments*. Hypotheses may be tested by crucial experiments. Ideally each hypothesis may be proved or disproved conclusively by a crucial experiment. In practice, few hypotheses are so proved or disproved. Some metaphysical hypotheses, those claiming that some characteristic is a category or universal characteristic of existence, are easily tested negatively.

For example, if time is proposed as a universal characteristic of existence, one may observe any existent. If one existent is observed to exist without time, then (assuming that no deficiencies are involved in the observation) the proposal is refuted by a crucial experiment. It takes only one observation of a negative instance to disprove a claim to universality.

*f. Probability*. Hypotheses may be tested in terms of increasing probability. If, for example, the hypothesis that time is a universal characteristic of existence is corroborated by one more positive instance each time a person observes, then (in the absence of negative instances) the probability that a person will find time present in his next observation increases.

Since it is impossible for either one or all persons at all times together to observe all of the instances of existence, no universal hypothesis about the nature of existence can be proved conclusively by inductive methods. Not only must each particular hypothesis about characteristics of existence observed as universal remain tentative, but any comprehensive hypothesis about how all such characteristics cooperate in constituting the nature of existence must also remain tentative. Any metaphysical hypotheses about characteristics of existence observed as universal must remain working hypotheses. So also all metaphysical hypotheses about the comprehensive nature of existence as embodying such characteristics must also remain working hypotheses. But such tentativity and continuance in a working status does not detract from their being scientific, for tentativity is itself an essential characteristic of the scientific attitude.

*5. Solving the problem*. Metaphysical problems, like most other philosophical problems, arise out of life when questions about the nature and kinds of existence occur. If a person has only a little curiosity about metaphysical problems, he may be satisfied that his theory of time, for example, is adequate. But many metaphysicians, aware of interdependencies among metaphysical problems, persist in seeking solutions to all metaphysical problems, including the problem of how all of the kinds and characteristics of existence exist together. They cannot be satisfied until they find a complex working hypothesis that best answers their questions about the nature and kinds of existence.

The tendency of many metaphysicians to seek comprehensive hypotheses has begotten the question: "Is system building essential to metaphysics? Two related answers seem called for:

a. No. The aim and purpose of metaphysics is to *discover* the nature of existence. If systems exist or if existence is systemic, then it is a part of the purpose of metaphysics to discover such systems or systemicness. It is not the purpose of metaphysics to create or build a system where none



exists, or one different from what exists. The aim of metaphysics is to discover whether or not a system exists and, if so, what system exists.

b. Yes. Existence cannot be reproduced completely in thought or captured completely in any theory. To think is to abstract. Attempts to discover what exists result in partial answers that do not always fit together consistently. In questing for understanding, scientists invent, create or build working hypotheses about how different observed kinds or characteristics of existence exist together. That is, system building as proposing working hypotheses is a common, if not essential, part of the nature of science, and is a common, if not essential, part of the methodology of metaphysics as an inductive science.

## THE SCIENTIFIC ATTITUDE

The scientific attitude, an essential component of science in its full sense, is an attitude that can, and should, be taken toward metaphysical problems when we seek to solve them scientifically. The scientific attitude is essential to metaphysics as an inductive science. This attitude has some essential characteristics. I emphasize two:

*1. Objectivity*. The scientific attitude involves a willingness to be objective. The willingness to be objective is a willingness to understand the way things are, however they are. It involves a desire to understand the nature of things. It presupposes that we are more likely to understand when biasing preconceptions and wishful thinking are eliminated from our inquiring attitudes and efforts. When emotional thinking, such as fear, hatred, anger, jealousy, pride or love, conditions inquiry, conclusions influenced by them cannot be regarded as completely objective.

Unfortunately, naive and false conceptions of objectivity have occurred and often prevail among alleged scientists. Actually, objects and subjects are correlative. Every object is an object for a subject. Objectivity is one kind of subjective attitude toward objects. To ignore the subjectivity inherent in objectivity is to fail to be completely objective about the nature of knowledge. All objects appear to subjects. Some objects appear as merely apparent, such as a ringing in my ears. Some objects appear as if real, i.e., as if existing whether appearing or not, such as the ringing alarm clock I have just covered with a pillow. Although appearances are intuited, objects appearing to be real involve inferences which may be false. The attitude of objectivity regarding apparently real objects thus involves a willingness to risk possibilities of inferential error.

*2. Tentativity*. In addition to involving curiosity, open-mindedness, willingness to speculate about possible conclusions and to entertain suggestions from any source, and to be persistent in pursuit of evidence, the

scientific attitude involves a willingness to remain tentative about conclusions so long as evidence is not conclusive. Although complete induction is possible relative to some problems, most inductive conclusions, especially those pertaining to complex apparently real objects and to proposed universal characteristics of existence, must remain inconclusive. Tentativity means both a willingness to hold on to hypothetical conclusions in light of supporting evidence and a willingness to hold loosely enough to be willing to loosen one's hold more whenever additional contradictory evidence appears. Thus tentativity involves both confidence that a hypothesis is worthy of continuing entertainment and experimental use and uncertainty regarding whether it can or will ever be confirmed completely. An attitude of tentativity regarding solutions proposed for metaphysical problems is to be expected by all who regard metaphysics as an inductive science.

Distinguishing between science and ideology, where science involves tentativity as an essential characteristic of its attitude, and ideology involves unquestioning or dogmatic belief as a normal characteristic of its attitude, I can say that establishment of ideologies that include metaphysical doctrines tends to mislead those introduced to metaphysics through such ideologies regarding the nature of metaphysics as an inductive science. In this way, ideologies and metaphysics as an inductive science are antagonistic.

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