# 9

# The Pragmatic and Analytic Traditions

It is no truer that "atoms are what they are because we use 'atom' as we do" than that "we use 'atom' as we do because atoms are as they are." Both of these claims . . . are entirely empty.     —Richard Rorty

We have no way of identifying truths except to posit that the statements that are currently rationally accepted (by our lights) are true.     —Hilary Putnam

As the twenty-first century gains momentum, we might reflect briefly on all the last one brought us: air travel, Einstein, nuclear weapons, television and computers, clones, photographs of sunsets on Mars, war on civilian populations, genocide, AIDS, the rise and fall of the Soviet Union, racial integration in the United States, and hip-hop. In art and literature, traditional structures and approaches were cast aside with abandon. Schoenberg and Stravinsky brought the world music that lacked fixed tonal centers; Cage brought it music that lacked sound. In Europe existentialist philosophers proclaimed the absurdity of the human predicament. In Russia the followers of Marx declared an end to the existing order; still later, the followers of the followers declared an end to Marx.

In philosophy, on the continent of Europe in the twentieth century, the assault on idealism was begun by the nihilistic attacks of Schopenhauer and Nietzsche (**nihilism** is the rejection of values and beliefs) and by the religious anti-idealism of Søren Kierkegaard. Anti-Hegelianism reached its summit in existentialism, according to which life is not only not perfectly rational, it is fundamentally irrational and absurd. Meanwhile, in Britain and the United States, philosophers were busy with other things, as we explain in this chapter.

## PRAGMATISM

The United States' distinctive contribution to philosophy is known as **pragmatism** or, sometimes, American pragmatism. The brightest lights of pragmatism were the "classic" pragmatists **C. S. Peirce** (1839–1914), **William James** (1842–1910), **John Dewey** (1859–1952), and more recently **Richard Rorty** (1931–2007). In general, pragmatists rejected the idea that there is such a thing as fixed, absolute truth. Instead, they held that truth is relative to a time and place and purpose and is thus ever changing in light of new data.

To fine-tune things a bit, in the 1870s, Peirce and James created a philosophy club in Cambridge, Massachusetts, from whose discussions pragmatism sprang. James, however, gave the credit for inventing pragmatism to Peirce. The latter, a logician, thought of pragmatism as a rule for determining a proposition's meaning, which he equated with the practical consequences that would result from the proposition's being true. By this standard, he said, metaphysical propositions are mostly either meaningless or absurd. Truth, he said famously, is the opinion fated to be agreed to by all who investigate.

Despite Peirce's importance, most people probably associate pragmatism with James, an entertaining and colorful expositor of ideas. James thought the whole point of philosophy should be to find out what difference it makes to a person if an idea is true or false. The meaning and truth of an idea, he said, are determined by its usefulness, by its "cash value." The whole purpose of thinking, he held, is to help us relate to our surroundings in a satisfactory way. An idea is a road map, whose meaning, truth, and value lie in its ability to carry us from one part of experience to another part in a secure, simple, and efficient way.

James thought that, in general, ideas that have been verified or falsified by the community of scientific investigators enable us to make the most accurate predictions about the future and therefore may be counted on to possess the highest degree of workability. However, he also believed that, within certain parameters, you can *will yourself to believe* something, and also that, within certain parameters, you are wise to make yourself believe something if doing so benefits you. He didn't mean that you should deceive yourself. If you smoke, he wouldn't advise you to believe that smoking promotes good health because you would feel better if you believed it: in the long run, believing that smoking is healthy won't benefit you. But if you must either accept or reject a belief, and the evidence for and against the belief weighs in equally, then believe as your "vital good" dictates, said James. For example, if the hypothesis that God exists works satisfactorily for you in the widest sense of the word, you are justified in believing it is true. We will consider this theory more carefully in Part Three.

For Peirce, what is true is what investigators agree to; the *sum* of its consequences is what a conception means. James, by contrast, has a much more individualistic concept of meaning and truth: roughly, what is true is what "works" for the individual. Of course, for James, what the community of scientific investigators agree to is what ultimately does work for the individual. So, as a practical matter, for both James and Peirce the same scientific findings will count as true.
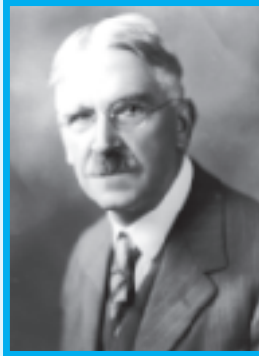
## PROFILE: John Dewey (1859–1952)

John Dewey lived almost a century. He was born before the American Civil War, and he died during the Korean War. His influence on American life was profound.

Dewey was the third of four children in his family. His father owned a grocery business and then a tobacco business in Burlington, Vermont, where Dewey was raised. Dewey was not considered a brilliant mind as a high school student, but his discovery of philosophy as a junior at the University of Vermont awakened slumbering genius. He received his PhD at Johns Hopkins and taught at Michigan, Minnesota, Chicago, and Columbia. He continued to write, publish, and lecture long after his retirement from Columbia in 1930.

Dewey exerted his greatest influence on society by virtue of his educational theories. He was an effective proponent of progressive education, which opposed formal, authoritarian methods of instruction in favor of having students learn by performing tasks that are related to their own interests. Today, educational practice throughout the United States and in many areas across the world generally follows the fundamental postulates of Dewey's educational philosophy, although his belief that the school is the central institution of a democratic society is not always shared by American taxpayers.

A kind, generous, and modest man, Dewey was also an effective social critic and an influential participant in reform movements. He was utterly fearless in advocating democratic causes, even those, like women's suffrage, that were deeply unpopular. Despite having unreconcilable philosophical differences with philosopher Bertrand Russell (discussed later in this chapter), Dewey was active on Russell's behalf when Russell was denied permission to teach at the City College of New York in 1941 (see the profile on Russell). He was also one of the original founders of the American Civil Liberties Union.

Dewey was not the world's most inspiring public speaker, and one of his students said that you could understand his lectures only by reading your notes afterward. Maybe the popularity of these lectures of his throughout the world despite the stylistic drawbacks is sound indication of the power of Dewey's ideas.

The bibliography of Dewey's works runs over one hundred fifty pages, and his writings touch on virtually every philosophical subject. All told, he wrote forty books and seven hundred articles. His thought dominated American philosophy throughout the first part of the twentieth century. He was and still is America's most famous philosopher.

Among the most famous of Dewey's works are *Reconstruction in Philosophy* (1920), *Human Nature and Conduct* (1922), *Experience and Nature* (1925), *The Quest for Certainty* (1929), *Art As Experience* (1934), *Freedom and Culture* (1939), and *Problems of Men* (1946).

John Dewey's brand of pragmatism is known as **instrumentalism,** according to which, roughly, the forms of human activity, including thought, are instruments used by people to solve practical problems. In Dewey's view, thinking is not a search for "truth" but rather an activity aimed at solving individual and social problems, a means by which humans strive to achieve a satisfactory relationship with their environment.

From Dewey's perspective, metaphysics, like religious rites and cults, has been a means of "escape from the vicissitudes of existence." Instead of facing the uncertainties of a constantly changing world, metaphysicians have sought security by searching for fixed, universal, and immutable truth.

From Dewey's point of view, nature is experience. This is what he means. Objects are not fixed substances but individual things ("existences" or "events," he called them) that are imbued with meanings. A piece of paper, for instance, means one thing to a novelist, another to someone who wants to start a fire, still another to an attorney who uses it to draw up a contract, still another to children making paper airplanes, and so on. A piece of paper is an instrument for solving a problem within a given context. What a piece of paper *is* is what it means within the context of some activity or other.

But when he held that an object is what it means within an activity, Dewey did not mean to equate the object with the thought about it. That was the mistake made by idealism, in Dewey's view. Idealism equated objects with thought about them and thus left out of the reckoning the particular, individual thing. Objects are not reducible to thought about objects, according to Dewey. Things have an aspect of particularity that idealism entirely neglects, he held.

But this does not mean that Dewey thought that there are fixed, immutable substances or things. The doctrine that "independent" objects exist "out there" outside the mind—realism—is called by Dewey the **spectator theory of knowledge.** It is no more acceptable to Dewey than is idealism. On the contrary, his view was that, as the uses to which a thing is put change, the thing itself changes. To refer to the earlier example, a piece of paper is both (1) a particular item and (2) what is thought about it within the various and forever-changing contexts in which it is used.

Given this metaphysical perspective, from which abstract speculation about so-called eternal truths is mere escapism, it is easy to understand why Dewey was primarily interested in practical problems and actively participated in movements of social, political, and educational reform. He was effective as a social activist, too. Few individuals have had more impact on American educational, judicial, or legislative institutions than did Dewey. The educational system in which you most probably were raised, which emphasized experimentation and practice rather than abstract learning and authoritarian instructional techniques, is the result of his influence.

During the twentieth century, pragmatism in many United States university philosophy departments was replaced by analytic philosophy, which had its roots in Britain (as we shall see). However, the pragmatic tradition in America was carried forward by Willard Van Orman Quine, Hilary Putnam, and others, and most famously perhaps by Richard Rorty, who we will turn to next.

## Richard Rorty

American philosopher **Richard Rorty** (1931–2007) was suspicious of the traditional claims of philosophy itself to have the method best suited to finding "truth." He adopted the way of American pragmatism exemplified by William James and John Dewey and applied it to the role of literature in society. The "best" literature, Rorty said, can open its readers to new possibilities for constructing a meaningful life. Some philosophical writing falls into this character. He disputed the idea that philosophy's focus should be to determine what we can and can't know. "Truth is

not out there," he wrote. In other words, truth is not separate from what we experience in our daily lives. Truth is whatever "survives all objections within one's culture." Nobody can say whether or not (s)he has reached the truth, except in the sense held in one's culture. And "there is no method for knowing one has reached the truth, or when it is closer than before."

In his early career, Rorty worked on mainstream analytical philosophy. In his later years, he sought to combine American liberalism with Continental literature and philosophy. He borrowed from Freud, Nietzsche, Heidegger, Wittgenstein, Quine, and others. Over time, however, he became disenchanted with professorships in philosophy departments and became first a professor of humanities, then a professor of comparative literature at Stanford. In his writings, he drew on Dewey, Hegel, and Darwin, creating a pragmatist synthesized theory to refute some of the givens of traditional philosophy.

Rorty referred to the standards of evidence, reasonableness, knowledge, and truth as "starting points" and described his pragmatic view that standards are relative to one's culture by saying that the starting points are "contingent." If we give up trying to evade "the contingency of starting points," then "we shall lose what Nietzsche called 'metaphysical comfort,' but we may regain a renewed sense of community."

Despite his many critics, Rorty produced an impressive volume of work on thought, culture, and politics, which has won him a place as a much-discussed thinker.

## ANALYTIC PHILOSOPHY

To understand analytic philosophy, we first of all have to understand what analysis is.

## What Analysis Is

Quite simply put, philosophical **analysis** resolves complex propositions or concepts into simpler ones. Let's take an elementary example. The proposition

Square circles are nonexistent things.

might be resolved by analysis into the simpler proposition

No squares are circular.

This second proposition is "simpler" philosophically because it refers only to squares and their lack of circularity, whereas the first proposition refers to two distinct classes of entities, square circles and nonexistent things.

Moreover, the first proposition is troubling philosophically. It is certainly an intelligible proposition. Hence, it would seem that square circles and nonexistent things must (somehow and amazingly) exist in some sense or another. If they did not exist, the proposition would be about nothing and thus would not be intelligible. (It is precisely this reasoning that has led some philosophers to conclude that every object of thought must exist "in some sense," or "subsist.")

The second sentence contains the same information as the first but does not have the puzzling implications of the first. Not only is it simpler than the second,

it is also clearer. Once the first sentence is recast or analyzed in this way, we can accept what the first sentence says without having to concede that square circles and nonexistent things exist "in some sense."

This very simple example of analysis will perhaps help make it clear why many analytic philosophers have regarded analysis as having great importance for the field of metaphysics. Be sure that you understand the example and everything we have said about it before you read any further.

## A Brief Overview of Analytic Philosophy

To understand how analysis became so important as a method of philosophy, think back to Kant (Chapter 7). Kant thought that knowledge is possible if we limit our inquiries to things as they are experienceable, because the mind imposes categories on experienceable objects. The Absolute Idealists, Hegel being the prime example, then expanded on Kant's theory and held that the categories of thought *are* the categories of being. Absolute Idealism quickly caught hold in Western philosophy, and even in England clever versions of it flourished in the late nineteenth century. We say "even in England" because prior to this time English philosophy had been firmly rooted in empiricism and common sense.

One Englishman who subscribed to idealist metaphysical principles was **Bertrand Russell** [RUSS-ul] (1872–1970). Russell, however, had taken an interest in philosophy in the first place because he studied mathematics and wanted to find a satisfactory account of numbers and mathematics. He began to think that Absolute Idealist philosophies involve a couple of very dubious and interrelated assumptions: first, that propositions all have the subject/predicate form, and second, that an object's *relationships* to other entities are a part of the object's essence. Russell felt these assumptions were incompatible with there being more than one thing (which was why Absolute Idealist theories all maintained there is but one thing, the Absolute) and thus felt they were incompatible with mathematics. Further, when Russell read what Hegel had to say about mathematics, he was horrified, finding it both ignorant and stupid. So Russell abandoned Absolute Idealism.

What Russell had in mind by saying he wished to find a satisfactory account of numbers and mathematics was this. He wanted to ascertain the absolutely basic, indefinable entities and the absolutely fundamental indemonstrable propositions of mathematics. It might seem to you that the basic entities of mathematics are numbers and that the absolutely fundamental propositions are propositions of arithmetic such as $2 + 2 = 4$. Russell, however, believed that propositions about numbers are only *apparently* or *grammatically* about numbers (just as the proposition we presented was only apparently or grammatically about square circles) and that arithmetical propositions are logically derivable from even more basic propositions.

The theory that the concepts of mathematics can be defined in terms of concepts of logic, and that all mathematical truths can be proved from principles of formal logic, is known as **logicism.** The first part of the theory (that mathematical concepts can be defined in terms of logical concepts) involves our friend analysis:

## PROFILE: Bertrand Russell (1872–1970)

Bertrand Russell came from a distinguished background. His grandfather, Lord John Russell, was twice prime minister; his godfather was John Stuart Mill, of whom much mention is made in later chapters; and his parents were prominent freethinkers. Because his parents died when he was young, Russell was brought up in the household of Lord Russell. This side of the family was austerely Protestant, and Russell's childhood was solitary and lonely. As a teenager, he had the intuition that God did not exist and found this to be a great relief.

In the fall of 1890, at a time when several other brilliant philosophers were also there, Russell went to Cambridge to study mathematics and philosophy. Many of Russell's important works in philosophy and mathematics were written during his association with Cambridge, first as a student, then as a fellow and lecturer. His association with Cambridge ended in 1916, when he was dismissed for pacifist activities during World War I. He was restored as a fellow at Cambridge in 1944.

Russell was dismayed by the enthusiasm among ordinary people for the war, and his own pacifism created much resentment. After he was dismissed from Cambridge, he was imprisoned for six months for his pacifism; thereafter, he held no academic position again until he began to teach in the United States in 1938.

Russell thought that without a proper education a person is caught in the prison of prejudices that make up common sense. He wanted to create a kind of education that would be not only philosophically sound but also nonthreatening, enjoyable, and stimulating. To this end he and his wife, Dora, founded the Beacon Hill School in 1927, which was influential in the founding of similar schools in England and America.

In addition to writing books on education during the period between the wars, Russell wrote extensively on social and political philosophy. His most infamous popular work, *Marriage and Morals* (1929), was very liberal in its attitude toward sexual practices and caused the cancellation of his appointment to City College of New York in 1940. He was taken to court by the mother of a CCNY student, and the court revoked Russell's appointment "for the sake of public health, safety, and morals." Apparently the most damaging part of the evidence against Russell was his recommendation in the book that a child caught masturbating should not be physically punished.

World War II and the Nazi onslaught caused Russell to abandon his pacifism. In 1961, however, he was again imprisoned, this time for activity in demonstrations against nuclear weapons, and in 1967 he organized the so-called war crimes tribunal directed against American activities in Vietnam.

Russell received the Nobel Prize for literature in 1950, one of many honors bestowed on him. In his autobiography he said that three passions had governed his life: the longing for love, the search for knowledge, and unbearable pity for the suffering of humankind. Throughout his life Russell exhibited intellectual brilliance and extraordinary personal courage.

propositions involving numbers must be analyzed into propositions involving logical concepts—just as we analyzed a proposition about squares and nonexistent things into a proposition about squares and their properties. The details of this analysis, and the derivation of mathematical truths from principles of formal logic, are too technical to be examined in a text like this one.

Russell was not the only proponent of logicism. Somewhat earlier the German mathematician **Gottlob Frege** [FRAY-guh] (1848–1925) had devised a

"language"—a series of symbols—in which logical properties could be stated precisely and without the ambiguities of ordinary language. Modern symbolic logic is derived from Frege's language—the importance of which Russell may have been the first person other than Frege himself to understand. Frege was concerned not only with the logical foundations of arithmetic but also with the issue of how words have meanings—an issue that was central throughout twentieth-century philosophy. For these reasons, many historians credit Frege even more than Russell with being the "founder" of analytic philosophy. However, Russell's writings were more widely read in English-speaking countries during at least the first half of the century, and in English-speaking countries Russell and Alfred North Whitehead's collaborative work, *Principia Mathematica* (final volume published in 1913), was considered the culminating work of logicism—and was a stunning intellectual achievement in any event.

Under the influence of his friend and colleague at Cambridge University, G. E. Moore (1873–1958), Russell began to conceive of the analytic method as *the* method of philosophy in general, a method that promised to deliver the same apparently indisputable results in other areas of philosophy that it had in the philosophy of mathematics. Around 1910 he began trying to do for epistemology exactly what he had attempted for mathematics: trying to determine the absolutely basic, indefinable entities and absolutely fundamental indemonstrable types of propositions of our knowledge of the external, physical world.

Moore, too, was concerned with our knowledge of the external world and devoted considerable energy to the analysis of some commonsense beliefs about physical objects. Moore also extended the analytic approach to propositions in moral philosophy (more on this in Part Two). Somewhat later, Gilbert Ryle (1900–1976), another important practitioner of analytic techniques, conceived of traditional philosophical problems as resting on "linguistic confusions." He achieved impressive apparent resolutions of several perennially knotty philosophical problems by using analytic techniques. Ludwig Wittgenstein (1889–1951), Russell's student and later a colleague, thought that, by using analysis, philosophy could actually disclose the ultimate, logical constituents of reality, their interrelations, and their relationship to the world of experience. Wittgenstein thought the goal of analysis was to reduce all complex descriptive propositions to their ultimately simple constituent propositions. These latter propositions would consist of "names" in combination, which would represent the ultimate simple constituents of reality.

In the 1920s, Moritz Schlick (1882–1936), a philosopher at the University of Vienna, formed a group known as the **Vienna Circle,** the members of which were much impressed by the work of Russell and Wittgenstein. Referring to their philosophy as **logical positivism,** the group held that philosophy is not a theory but an activity whose business is the logical clarification of thought. The logical positivists proclaimed a "**verifiability criterion of meaning.**" According to this criterion, suppose you say something, but nobody knows what observations would verify what you are trying to say. Then you haven't really made a meaningful empirical statement at all. And thus, the logical positivists held, traditional metaphysical utterances are not meaningful empirical statements. Take, for example, Hegel's

thesis that reason is the substance of the universe. How could this be verified? Well, it just could not be. So it is not a genuine factual proposition; it is not empirically meaningful. In a reading selection at the end of the chapter, A. J. Ayer (1910–1989), who was the most famous English member of the Vienna Circle, explains the verifiability criterion of meaning in more detail.

Moral and value statements, the logical positivists said, are likewise empirically meaningless. At best they are expressions of emotions rather than legitimate statements. Philosophy, they said, has as its only useful function the analysis of both everyday language and scientific language—it has no legitimate concern with the world apart from language, for that is the concern of scientists.

The Vienna Circle dissolved when the Nazis took control of Austria in the late 1930s, but to this day many people still equate analytic philosophy with logical positivism. This is true despite the fact that nowadays few philosophers who refer to themselves as analysts subscribe to the verifiability criterion of meaning or accept many other of the basic assumptions of logical positivism.

In fact, today it is doubtful whether many of those who would call themselves analytic philosophers would even describe analysis as the only proper method of philosophy. Indeed, few would even describe their daily philosophical task as primarily one of analysis. There are philosophical tasks one might undertake other than analysis, and some who would still not hesitate to call themselves analysts have simply lost interest in analysis in favor of these other tasks. Others, like Wittgenstein, have explicitly repudiated analysis as the proper method of philosophy. Wittgenstein's about-face was published in 1953 in his enormously influential *Philosophical Investigations.*

Further, it is now widely held that many philosophically interesting claims and expressions cannot intelligibly be regarded as complexes subject to resolution into simpler and less misleading expressions. Certainly, the intent to recast the meaning of an expression into a less misleading form can be carried out only if its "real" or "true" meaning can be ascertained by the analyst. But concerns have been raised, perhaps most notably by W. V. O. Quine (1908–2000), about whether it is ever possible to say in some absolute, nonrelativistic sense what the meaning of an expression is. And for many expressions, it seems inappropriate in the first place to speak of their "meaning." Clearer understanding of many expressions seems to be achieved when we ask how the expression is used or what it is used to do rather than what it means, unless the latter question is taken as being equivalent to the two former questions, as it often is.

So it has become accepted that there are many useful philosophical methods and techniques other than the analysis of language, and it is pretty widely thought that good, substantial philosophical work is by no means always the result of analysis of some sort. Many of today's analytic philosophers would deny being directly concerned with language (though most are concerned with expressing themselves in clear language). Nor could it be said that all analytic philosophers mean the same thing when they speak of analysis. In its broadest sense, a call for "analysis" today is simply a call for clarification, and certainly today's analytic philosophers exhibit (or hope they exhibit) a concern for clarity of thought and expression as well as a great appreciation for detail. Most, too, would be inclined to say that at least some opinions expressed by earlier

philosophers reflect linguistic confusions if not outright logical errors, but beyond this it is not the case that all analytic philosophers use some common unique method of philosophizing or have the same interests or share an identifiable approach to philosophical problems. In today's world, philosophers are apt to call themselves "analytic" to indicate that they do not have much training or interest in Continental philosophy as for any other reason.

So, to boil this down, the history of "analytic philosophy" is just the history of a strain of twentieth-century philosophy primarily in English-speaking countries that evolved from the writings and discussions of Russell, Moore, Frege, Wittgenstein, and others.

## Language and Science

Frege's interest in the foundations of mathematics and the proper understanding of arithmetical terminology led Frege, and Russell after him, to reflect on broader questions about the nature of language and how language has meaning. Following the lead of Frege and Russell, many twentieth-century analytic philosophers were fascinated with questions of language—how words and sentences can have meaning, what it is for them to have meaning, and how they connect with the world. Many analytic philosophers indeed consider philosophy of language (which is concerned with such questions rather than with providing specific analyses of interesting or important propositions) to be more fundamental and important than metaphysics or epistemology. It is easy to understand why they might take this view. For example, according to the verifiability theory of meaning propounded by the logical positivists, an assertion purporting to be about reality can have meaning only if it is possible to verify it through observation. This theory led the positivists to reject metaphysical assertions as meaningless.

What is it for a word or phrase to have a meaning? If you had to answer this question, you would perhaps begin with the simplest kinds of words or phrases, words or phrases like the name "Mark Twain" or the naming phrase "the author of *Roughing It*" that simply designate things (in this case, a person). This was exactly the starting point of many philosophers of language, and a large literature was generated throughout the twentieth century on the problem of what it is for a name or naming phrase to have a meaning. A large literature was generated not only because such words and phrases are the simplest and most fundamental linguistic units but also because it wasn't clear what it is for such words and phrases to have a meaning. The starting point turned out to be located in rather deep water.

We cannot go into those matters here, but to give you an idea of only elementary difficulties, consider the apparently innocent question, What is the meaning of "Mark Twain"? The apparently obvious answer is that the meaning of "Mark Twain" is the person designated by that name, that is, Mark Twain. This answer will not do, of course: Mark Twain (the person) no longer exists, but "Mark Twain" (the name) still has a meaning. Further, since "Mark Twain" and "Samuel Clemens" designate the same person, according to the theory we are considering, the two names mean the same thing. Hence the theory we are considering absurdly

entails that the sentence "Mark Twain was Samuel Clemens" means the same as the sentence "Mark Twain was Mark Twain." If what the theory entails is absurd, the theory itself must be defective.

It seems, therefore, that there is more to the meaning of a name than the thing it designates; but what more? Frege called this additional element the "sense" of the name, and he and Russell said that the sense of a name is given by a "definite description" associated with the name; in the case of "Mark Twain," this definite description might be "the American author who wrote *Tom Sawyer.*" Russell then proposed a theory of how definite descriptions can have a reference—a theory that he once said was his most important contribution to philosophy. However, these are technical issues; suffice it to say that the question of how even such elementary linguistic items as names have meaning has not been resolved.

Another seemingly easy question—that also turns out to be quite difficult—is, What is it for a sentence to have a meaning? Take the sentence "Our cockatoo is in its cage"; apparently the sentence must in some way "represent" the fact that our cockatoo is in its cage. But what, then, should we make of a sentence like "Our cockatoo is not in the refrigerator"? Does that sentence represent the "negative" fact of *not* being in the refrigerator? What kind of fact is that? For that matter, what is it for a sentence to "represent" a fact in the first place? And, incidentally, what *are* facts? As we shall see in a moment, Wittgenstein believed that a sentence "pictures" a fact—a belief from which he derived an imposing metaphysical system.



How many objects are in this picture? Two? Really? What about the girl's hair or the seams on the volleyball—are those objects? Analytic philosophy is useful to sort out confusions such as this.

Further, as pointed out earlier, for many expressions meaning seems fixed by how the expression is used more than by what the words in it refer to. A threat or a promise might clearly fall into this category, for example. Some writers, accordingly, have been much concerned with the "pragmatics," or social aspects and uses, of language. All in all, questions of language, meaning, and the connection between language and the world still remain among the most actively discussed in contemporary analytic philosophy.

Another subject of interest for many analytic philosophers has been science. Many of the issues in the philosophy of science were first raised by the philosophers of the Vienna Circle—the logical positivists—who included not only philosophers but scientists and mathematicians as well. What might philosophers think about when they think about science? They might wonder whether and in what sense "scientific entities" (such as genes, molecules, and quarks) are "real" or what relation they bear to sensory experience. They may inquire as to the nature of a scientific explanation, theory, or law and what distinguishes one from the other. Are scientific observations ever free from theoretical assumptions? they might inquire. They may wonder what it is that marks off science from other kinds of inquiry, including philosophy and religion (do they perhaps at some level all accept something "on faith"?)—and from pseudoscience. In a similar vein, they may wonder what kind of reasoning, if any, characterizes science. They may consider the extent to which the natural sciences (if not all the individual sciences) are "reducible" to physics.

An issue with which the logical positivists were concerned was the relation of statements about theoretical scientific entities such as neutrons and protons to statements that record our observations. After all, protons cannot be observed, and according to the verifiability criterion of meaning, a statement that cannot be verified by observations is meaningless. Thus, some of the positivists felt that statements about protons (for example) must be logically equivalent to statements about observations; if they were not, they, too, would have to be thrown out as meaningless gibberish along with metaphysical utterances. Unfortunately, this "translatability thesis" turned out to be doubtful, and the question of the precise relationship between theory and observation is still very much under discussion.

The positivists assumed, in any case, that statements that report observations are directly confirmed or disconfirmed by experience and, in this respect, are unlike theoretical statements. But later philosophers of science, such as, notably, N. R. Hanson, suggested that what one observes depends on the theoretical beliefs one holds, so the distinction between theory and observation is very weak, if it exists at all. Indeed, some theorists questioned whether there are theory-independent "facts" at all.

One philosopher of science, Thomas Kuhn (1922–1996), was especially concerned with scientific activity conceived not as the verification of theories but rather as the solving of puzzles presented within a given scientific "paradigm"—a scientific tradition or perspective like Newtonian mechanics or Ptolemaic astronomy or genetic theory. Because, in Kuhn's view, observations are imbued with theoretical assumptions, we cannot confirm one theoretical paradigm over some other theoretical paradigm simply by appeal to some common and neutral set of

observational data; alternative paradigms are incommensurable. As you will see, there are affinities between this view and what is called *antirepresentationalism,* which we discuss later.

One other point deserves mention in this overview of analytic philosophy. It used to be that the history of philosophy was largely the history of the philosophies of specific individuals—Plato's philosophy, Aristotle's philosophy, Kant's philosophy, and so forth. But this changed after Russell, Moore, and Wittgenstein. Twentieth-century philosophy, especially perhaps philosophy in the analytic tradition, tends to be treated as a history of specific ideas, such as those mentioned in this chapter. Historians of twentieth-century philosophy often mention specific individuals only to give examples of people who subscribe to the idea at hand. It is the idea, rather than the philosopher, that is more important.

In addition, although the views of some specific "big-name" philosophers have been enormously influential within analytic philosophy, the course of analytic philosophy has been determined primarily by the journal articles published by the large rank and file of professional philosophers. These papers are undeniably technical, are directed at other professionals within the field, and usually deal with a fairly limited aspect of a larger problem. Articles and books that deal in wholesale fashion with large issues (e.g., What is the mind? Is there knowledge? What is the meaning of life? What is the ideal state? What is truth?) are comparatively rare. For this reason, and perhaps for others, the work of analytic philosophers strikes outsiders as narrow, theoretical, irrelevant, inaccessible, and tedious. The work of twentieth-century mathematicians is doubtlessly equally incomprehensible to laypersons, but the public's expectations are different for philosophers.

## Experience, Language, and the World

Analytic epistemology and metaphysics are a maze of crossing paths, but they wind through two broad areas of concern. The first of these is the interrelationship of experience, language, and the world. The second broad concern is the nature of the mind. In this section we consider a specific metaphysical and epistemological theory that resulted from concern with experience, language, and the world.

Analytic philosophy's first major metaphysical theory, **logical atomism,** is associated primarily with Bertrand Russell and his student and colleague **Ludwig Wittgenstein** [VITT-ghen-shtine] (1889–1951). Russell connected to it an epistemological theory known as phenomenalism. Atomists (Russell, Wittgenstein, and others who subscribed to their views) believed that the world is not an all-encompassing Oneness, as Hegelians would have it, but a collection of "atomic facts." To say the world consists ultimately of *facts* is to say it does not consist only of *things* but rather *things having properties and standing in various relations to one another.* Your study area, for example, has a chair and a desk and a lamp and so on standing in a certain arrangement; their being in this arrangement is not a thing, it is a fact.

The most basic facts, atomists like Russell and Wittgenstein believed, are *atomic,* which means they are components of more complicated facts but are not themselves composed of simpler or more basic facts; and it means they are logically independent of every other fact. (*Logically independent* here means

## PROFILE: Ludwig Wittgenstein (1889–1951)

So many discussions of Wittgenstein's philosophy were submitted to philosophy journals in the 1950s and 1960s that for a while some journals allegedly were reluctant to accept further manuscripts on his ideas. No other philosopher of the twentieth century had as great an impact on philosophy in Great Britain and the United States.

Wittgenstein was born in Vienna into a wealthy family and studied to become an engineer. From engineering, his interests led him to pure mathematics and then to the philosophical foundations of mathematics. He soon gave up engineering to study philosophy with Russell at Cambridge in 1912–1913. The following year he studied philosophy alone and in seclusion in Norway, partly because he perceived himself as irritating others by his nervous personality. During World War I he served in the Austrian army; it was in this period that he completed the first of his two major works, the *Tractatus Logico-Philosophicus* (1921), which sets forth logical atomism, explained in the text.

Wittgenstein's father had left Wittgenstein a large fortune, which after the war Wittgenstein simply handed over to two of his sisters, and he became an elementary school teacher. Next, in 1926, he became a gardener's assistant, perhaps a surprising walk of life for one of the most profound thinkers of all time. He did, however, return to Cambridge in 1929 and there received his doctorate, the *Tractatus* serving as his dissertation. In 1937 he succeeded G. E. Moore in his chair of philosophy.

During World War II Wittgenstein found himself unable to sit idly by, so he worked for two years as a hospital orderly and for another as an assistant in a medical lab. Time and again Wittgenstein, an heir to a great fortune and a genius, placed himself in the humblest of positions.

In 1944 Wittgenstein resumed his post at Cambridge, but, troubled by what he thought was his harmful effect on students and disturbed by their apparent poor comprehension of his ideas, he resigned in 1947. His second major work, the *Philosophical Investigations,* was published in 1953, two years after his death.

Reportedly, when he became seriously ill in April 1951 and was told by his physician that he was about to die, his response was simply, "Good." When he died a few days later, his last words were, "Tell them I've had a wonderful life."

that any basic or atomic fact could remain the same even if all other facts were different.)

Now, the atomists believed that profound metaphysical implications follow from the truism that we can form true propositions about the world, some of which are complexes of other, simpler, propositions. For a complex proposition must be resolvable into these simpler propositions. As an example, the proposition "The United States elected a Democrat as president" is resolvable, in principle, into propositions about individual people and their actions. But when people vote, they are really just doing certain things with their bodies. So a proposition about a person voting is resolvable, in principle, into propositions about these doings— about going into an enclosed booth, touching a screen or picking up a marking pen and marking a piece of paper, and so forth. Even a proposition such as "John Smith picked up a marking pen" is theoretically resolvable into propositions about John Smith's bodily motions and a piece of plastic that has certain properties; and indeed we are still quite far from reaching the end of this theoretical process of resolving complex propositions into more elementary ones.

Because complex propositions in principle must be resolvable into simpler propositions by analysis, theoretically there must be fundamental and absolutely uncomplex (i.e., simple) propositions that cannot be resolved further. Corresponding to these absolutely simple "atomic" propositions are the fundamental or atomic facts. (The precise nature of the "correspondence" between proposition and fact turned out to be a difficult matter. Wittgenstein thought the proposition *pictured* the fact.) Because every atomic fact is logically independent of every other, idealists were thought to be mistaken in believing that All is One. Further, because atomic facts are logically independent of one another, the propositions that corresponded to them are logically independent of one another.

Now, you may want an example or two of an atomic fact. Just what *is* a basic fact? Are these facts about minds or matter or neutrons or quarks or what? you will ask.

Well, the logical atomists, remember, were *logical* atomists, and this means that not all those who subscribed to logical atomism were concerned with what *actually are* the atomic facts. Some of them, most famously Wittgenstein, were concerned with setting forth what logically must be the basic structure of reality and left it to others to determine the actual content of the universe. Determining the logical structure of reality was enough, no little task in its own right, they thought.

As for Russell, he was always somewhat less concerned about what *actually* exists than with what we must *suppose* exists. For all he knew, he said, all the gods of Olympus exist. But the essential point is that we have no reason whatsoever to suppose that this is so.

As for what we must suppose exists, Russell changed his mind over the course of his long life. But generally he believed that the bare minimum that must be supposed to exist does *not* include many of the things that "common sense" is inclined to say exist, such as physical objects and atoms and subatomic particles. Russell's view was that what we say and think and believe about such things as these—let's call them the objects of common sense and science—can in theory be expressed in propositions that refer only to *awarenesses,* or **sense-data.** His position was that philosophically we do not have to believe in the existence of chairs or rocks or planets or atoms, say, as a type of entity that in some sense is more than just sense-data. Here, on one hand, he said in effect, are "data" actually given to us in sensation; there, on the other, are the external objects we strongly believe are out there and that science tells us so much about. How do we get from knowledge of our sense-data to knowledge of the objects? What we truly *know,* Russell said, are the data of immediate experience, our sense-data. Therefore, he said, what we *believe* exists (physical objects and scientific entities like atoms and electrons) must be definable in terms of sense-data if our belief in physical objects and scientific entities is to be philosophically secure. The affinities of this view with those of the logical positivists discussed earlier will be clear.

This idea—that physical and scientific objects are "definable" in terms of sense-data, or, more precisely, the idea that propositions about such objects in theory are expressible in propositions that refer only to sense-data—is known as **phenomenalism.** During the first forty or so years of the twentieth century,

phenomenalism seemed plausible to many analytic philosophers as a way of certifying our supposed knowledge of external objects. But today few philosophers are phenomenalists. There was strong adverse criticism of the theory around the middle of the twentieth century for a number of reasons. First, it became generally accepted that there is no set of sense-data the having of which logically entails that you are experiencing any given physical object. Second, it was unclear that physical-object propositions that mention specific times and places could find their equivalents in propositions that refer only to sense-data. And finally, it was thought that phenomenalists had to believe in the possibility of what is called a **private language,** and the idea of whether such a language is coherent was questioned (see the box "What I Mean by '*Blue*'").

Now, consider the history of epistemology and metaphysics from Descartes onward. One way of characterizing this history is that it has been an extended search for metaphysical truth derived from *incorrigible foundations of knowledge.*

## What I Mean by "*Blue*"

"What I mean by *blue* might be entirely different from what you mean by *blue,* and you and I cannot really understand each other."

Possibly most people find plausible the idea that one person does not know what another person means by a given word. They may tend to believe that a word stands for an idea that is the meaning of the word. And therefore, they think, because a word's meaning is locked up in the mind, what each of us means by our words is private to each of us.

In *Philosophical Investigations* (published in 1953 and regarded by many analytic philosophers as the most important philosophical work of the twentieth century), Ludwig Wittgenstein presented (around section 256) a somewhat sketchy series of reflections against the possibility of having a private language, a language that can be understood only by oneself.

The meanings of words lie not inside the mind, Wittgenstein suggested, but in their uses, and these uses are governed by rules. Because the rules are not our own private rules, other people can check the correctness of our usage of a given word. We do not and could not possibly have private languages, for in such "languages" the correctness of our usage of words is not subject to a public check. One's "words" would just be sounds that one could use as he or she pleased.

John Locke–type empiricism and its derivatives such as phenomenalism seem to presuppose we all speak private languages whose terms stand for ideas in the mind. The Wittgenstein argument seems to show that thesis is untenable.

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(An *incorrigible* proposition is one that is incapable of being false if you believe it is true.) For that matter, philosophers from before Socrates to the present have searched incessantly for these incorrigible foundations. They have looked everywhere for an unshakable bedrock on which the entire structure of knowledge, especially metaphysical knowledge, might be built. Augustine found the bedrock in revealed truth. Descartes thought he had found it in the certainty of his own existence. Empiricists believed the foundational bedrock of knowledge must somehow or other lie in immediate sensory experience. Kant found the foundation in principles supplied by the mind in the very act of experiencing the world.

But must a belief really rest on *incorrigible* foundations if it is to qualify as knowledge? More fundamentally, must it even rest on *foundations?* In the later part of the twentieth century philosophers questioned whether knowledge requires foundations at all. They questioned the assumption on which much traditional epistemology rested.

**Foundationalism** holds that a belief qualifies as knowledge only if it logically follows from propositions that are incorrigible (incapable of being false if you believe they are true). For example, take my belief that this before me is a quarter. According to a foundationalist from the empiricist tradition, I *know* that this before me is a quarter only if my belief that it is absolutely follows from the propositions that describe my present sense-data, because these propositions alone are incorrigible. But, the antifoundationalist argues, why not say that my belief that there is a quarter before me *automatically* qualifies as knowledge, unless there is some definite and special reason to think that it is mistaken?

The question of whether knowledge requires foundations is still under wide discussion among epistemologists. It is too early to predict the results of the discussion.

Many of those who attack the foundationalist position have been inclined, more recently, to endorse what is called **naturalized epistemology.** This is the view that traditional epistemological inquiries should be replaced by psychological inquiries into the processes actually involved in the acquisition and revision of beliefs. This view, which in its strongest form amounts to saying that epistemology should be phased out in favor of psychology, is controversial. Nevertheless, recent writing in epistemology has reflected a deep interest in developments in psychology.

## Antirepresentationalism

In the first half of the twentieth century, many philosophers (within the analytic tradition, at any rate) *assumed* that the natural sciences give us (or will eventually give us) the correct account of reality. They assumed, in other words, that natural science—and the commonsense beliefs that incorporate science—is the true metaphysics. The task for philosophy, it was thought, was to *certify* scientific knowledge epistemologically. This was to be done, it was supposed, by "reducing" the propositions of science—propositions about physical objects and their atomic constituents— to propositions that refer to sense-data, that is, by analyzing the propositions of science in the language of sensory experience. Eventually, though, as we have seen, philosophers doubted that this grand reduction could be carried out even in principle, and likewise many questioned the idea that knowledge requires foundations anyway.

In epistemology, as we saw, a leading alternative to foundationalism, naturalized epistemology (the scientific study of the processes involved in having knowledge) won adherents. In metaphysics, during the latter part of the twentieth century, an alternative to the view that physical objects are constructs of sense-data became widely held. According to this alternative to phenomenalism, physical objects are **theoretical posits,** entities whose existence we in effect hypothesize to explain our sensory experience. This nonreductionist view of physical objects as posited entities is also, like naturalized epistemology, associated with the work of W. V. O. Quine.

From a commonsense and scientific standpoint, physical objects are independent of the perceiving and knowing mind, independent in the sense that they are what they are regardless of what the mind thinks about them. The thesis that reality consists of such independent objects is known as **realism.** From a realist perspective, there are two epistemological possibilities: (1) we can know this independent reality; (2) we cannot know it: what is actually true may be different from what is thought to be true. The second view is skepticism, and phenomenalism was thought to be the answer to skepticism. But even if true, phenomenalism would refute skepticism only by denying realism; it would refute skepticism, that is to say, only by denying that objects are independent of the mind, or at least independent of our sense-data. The Quinean view of objects as theoretical posits is consistent with realism; however, it is also consistent with skepticism because (the skeptic would say) theoretical posits may not exist in fact.

Now, it would seem that either objects exist outside the mind or they are some sort of constructs of the mind: it would seem that either realism is true or some form of idealism is true. But there is another possibility, according to some philosophers. To understand this third possibility, let's just consider what underlies the realist's conception. What underlies it is the idea that the mind, when it is thinking correctly about the world outside the mind, accurately conceives of this world. Alternatively put, what underlies realism is the idea that true beliefs accurately portray or *represent* reality: what makes them true is the states of affairs to which they "correspond" or that they "mirror" or "depict" or "portray." This view—that beliefs about reality represent reality (either correctly, if they are true, or incorrectly, if they are false)—is called **representationalism.** From the representationalist point of view, a belief counts as knowledge only if it is a true belief, and a belief is true only if it is an accurate representation of the state of affairs that it is about. Representationalism underlay Russell's philosophy, and the *magnum opus* of representationalism was Wittgenstein's *Tractatus Logico-Philosophicus,* commented upon in an earlier box.

But it is possible to question the whole premise of representationalism, and that is exactly what several contemporary philosophers, including, most famously, Richard Rorty, whom we discussed earlier in this chapter, have done. **Antirepresentationalism** takes several forms, but basically it denies that mind or language contains, or is a representation of, reality. According to the "old" picture, the representationalist picture, there is, on one hand, the mind and its beliefs and, on the other, the world or "reality"; and if our beliefs represent reality *as it really is*—that is, as it is "in itself" independent of any perspective or point of view—the beliefs are true. Antirepresentationalists, by contrast, dismiss this picture as unintelligible. They find no significance in the notion that beliefs represent reality (or in the notion that they fail to represent reality, if they are false beliefs); and they find no sense in the idea of the world "as it really is"—that is, as it is independent of this or that perspective or viewpoint. According to antirepresentationalists, truth is not a matter of a belief's corresponding to or accurately representing the "actual" state of affairs that obtains outside the mind. When we describe a belief as true, they hold, we are simply praising that belief as having been proven relative to our standards of rationality. And when we say that some belief is "absolutely true," we just mean that its acceptance is so fully justified, given our standards, that we cannot presently imagine how any further justification could even be possible.

This conception of truth seems to imply that different and perhaps even apparently conflicting beliefs could equally well be true—as long as they are fully justified relative to alternative standards of rationality. Perhaps you, by contrast, would maintain that, although two conflicting beliefs could be *thought* to be true, they could not actually both *be* true. But if you hold this, then it may be because you are a representationalist and think that truth is a matter of a belief's correctly representing reality—reality as it is in itself, independent of any person's or society's perspective. But antirepresentationalists do not understand, or profess not to understand, what this business about a belief's correctly representing the world "as it really is" comes to. They say that nobody can climb outside his or her own perspective, and they say that this talk about the world "as it really is independent

of perspective or viewpoint" is just mumbo-jumbo. Antirepresentationalist themes have entered into analytic philosophy through Quine, Hilary Putnam, and other contemporary American analytic philosophers.

## Wittgenstein's Turnaround

It is appropriate now to say more about Ludwig Wittgenstein, whom many consider to be the most important analytic philosopher of the twentieth century. Wittgenstein's philosophy divides into two phases. Both had a great influence on his contemporaries, yet the philosophy of the second phase, that of the *Philosophical Investigations* (1953), was largely a rejection of the central ideas of the first, that of the *Tractatus* (1921). This is an unusual but not a unique occurrence in the history of philosophy, for other philosophers have come to reject their earlier positions as well.

In both works, Wittgenstein was concerned with the relationships between language and the world. The *Tractatus* assumes a single, essential relationship; the *Investigations* denies this assumption. In the *Tractatus,* Wittgenstein portrays the function of language as that of describing the world and is concerned with making it clear just how language and thought hook onto reality in the first place.

Well, just how does language hook onto reality? According to Wittgenstein, as we have seen, a proposition (or a thought) *pictures* the fact it represents. It can picture it, he said, because both it and the fact share the same *logical form,* a form that can be exhibited by philosophical analysis. All genuine propositions, he held, are reducible to logically elementary propositions, which, he said, are composed of *names* of absolutely simple objects. A combination of these names (i.e., a proposition) pictures a combination of objects in the world (i.e., a fact). The *Tractatus* is devoted in large measure to explaining and working out the implications of this *picture theory of meaning* across a range of philosophical topics. The result is logical atomism, as explained earlier.

But in the *Investigations,* Wittgenstein cast off completely this picture theory of meaning and the underlying assumption of the *Tractatus* that there is some universal function of language. After all, he noted in the later work, how a picture is *used* determines what it is a picture of—one and the same picture could be a picture of a man holding a guitar, or of how to hold a guitar, or of what a guitar looks like, or of what Bill Jones's fingers look like, and so on. Similarly, what a sentence means is determined by the use to which it is put within a given context or **language game.** Further, said the later Wittgenstein, there is nothing that the various uses of language have in common, and there is certainly no set of ideal elementary propositions to which all other propositions are reducible. In short, according to the later work, the earlier work is completely wrongheaded.

When philosophers ignore the "game" in which language is used, Wittgenstein wrote in the *Investigations*—when they take language "on a holiday" and try to straitjacket it into conformity with some idealized and preconceived notion of what its essence must be—the result is the unnecessary confusion known as a philosophical problem. From this perspective, the history of philosophy is a catalogue of confusions that result from taking language on a holiday.

No better illustration of how taking language on a holiday leads to strange results can perhaps be found than the paradox that lies at the end of Wittgenstein's

At first Wittgenstein believed that a proposition like "the dog is on the surfboard" pictures a fact much as the photograph pictures that fact. Later he repudiated the "picture theory of meaning."

earlier work, *Tractatus Logico-Philosophicus*. In that work, Wittgenstein had been held captive by a theory of how language links itself to the world, and his discussion of how language links itself to the world was expressed in language. This placed Wittgenstein in the paradoxical situation of having used language to represent how language represents the world. And this, he concluded, could not be done—despite the fact that he had just done it. Language, he said, may be used to represent the world but cannot be used to represent how language represents the world. "What expresses itself in language, we cannot express by means of language."

Thus, Wittgenstein concluded the *Tractatus* with an outrageous paradox: "My propositions serve as elucidations in the following way," he wrote. "Anyone who understands me eventually recognizes them as nonsensical; when he has used them—as steps—to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.)" The later Wittgenstein just threw away the entire *Tractatus*.

## QUINE, DAVIDSON, AND KRIPKE

Outside philosophy departments, **Willard Van Orman Quine** (1908–2000), his student **Donald Davidson** (1917–2003), and **Saul Kripke** (1940– ) are not well known. But the three are among the most important recent American philosophers; one doesn't study philosophy at the graduate level in this country without becoming familiar with their work. All made important independent contributions to logic, metaphysics, and the philosophy of language.

## Willard Van Orman Quine

Quine's work in logic is rather technical for introductory general texts, but we really must say something about Quine's contributions to philosophy of language. His most famous writings in this arena were the essay "Two Dogmas of Empiricism" (1951) and the book *Word and Object* (1960).

In "Two Dogmas of Empiricism," Quine carefully scrutinized two empiricist ideas: (1) the "analytic/synthetic distinction" and (2) "reductionism."

By **reductionism,** Quine meant the view that *every meaningful statement "reduces" to the experiences that would confirm or disconfirm it.* If you have read Chapter 7, you are familiar with this idea; it is indeed the guiding principle of empiricism. John Locke, remember, held that every idea originates in sense experience; and early twentieth-century empiricist philosophers subscribed to the **translatability thesis,** according to which statements about the world can (in theory) be "translated" into statements about immediate sensory experience. Now, Quine's contrary view was that it is a mistake to suppose that statements *taken in isolation* can be confirmed or disconfirmed. "Our statements about the external world," he wrote, "face the tribunal of sense experience not individually but only as a corporate body." What this means will become clearer shortly.

The second empiricist idea rejected by Quine as a dogma is the idea that *there is a clear boundary between "synthetic" statements and "analytic" statements.* This needs explaining.

For Quine, a true **synthetic** statement is one that holds "contingently," and a true **analytic** statement is one that holds "come what may." For example, take the true synthetic statement, "Barack Obama is married." This is true, but it might have been false. Its truth is contingent, or dependent, on the way the world actually is. By contrast, take the analytic statement, "If Barack Obama is married, he has a spouse." This statement (one would say) must be true. It holds come what may.

But remember that (according to Quine) it doesn't make sense to talk about the confirmation or disconfirmation of *individual* statements. Since (according to Quine) a person's knowledge is an *interlocking system* of beliefs, "no statement is immune to revision" (that's another way of saying that no statement is true come what may) if you are willing to make adjustments elsewhere in your interlocking system of beliefs. For example, you could claim that the earth isn't round if you are willing to subscribe to the view that the evidence that it is round is hallucinatory. You could believe that $2 + 2$ is not 4 if you are willing to "make adjustments" in the principles of arithmetic. You could believe that married individuals don't have spouses if you are willing to believe you have been programmed with false memories about what "married" and "spouse" mean.

But this raises the question, Which interlocking system of beliefs, or *ontology,*[1] is the correct one? Quine held that ontologies are neither "correct" nor "incorrect" in any absolute sense. According to him, the scientifically minded person will accept and reject beliefs purely on practical or "pragmatic" grounds. So it isn't

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[1] Ontology is the branch of metaphysics that seeks to ascertain the most basic categories and entities. For example, many these days think that the most basic entities are things like quarks or strings and the electromagnetic force and so forth. These categories are a part of the "ontology" of physics.

that the physics ontology (quarks, atoms, electromagnetism, and so forth) is "truer" than the Greek-gods ontology; it's just that the former ontology has proved considerably more practical. When it comes to predicting future experience, you get a better result if you believe in quarks and atoms and the laws of physics.

In later essays, including his most famous book, *Word and Object,* Quine went even further. In that book, he held that, not only is it a mistake to regard an ontology as "correct" in any absolute sense, there is no "fact of the matter" as to what objects it even refers to. He thought that any theory, indeed, any language, is subject to **indeterminacy of translation,** meaning (roughly) that alternative incompatible translations are equally compatible with the linguistic behavior of adherents or speakers. He wrote, as well, of the **inscrutability of reference,** meaning (again roughly) that incompatible alternative conceptions of what objects a theory refers to are equally compatible with the totality of physical facts. Quine thus said that he subscribed to "ontological relativity."[2]

## Donald Davidson

Davidson is especially well known for having devised a theory of meaning for natural language based on developments in formal logic. Without going into details, which are technical, Davidson wished to develop a theory of meaning for natural languages. (A "natural language" is one that arises naturally for human communication purposes, such as English or Signed English. Formal languages, by contrast, include such things as computer programming languages and symbolic logic.) A theory of meaning for a language, for Davidson, would specify the meaning of every sentence in the language and would account for the fact that, from a finite vocabulary of words, users of the language could understand an infinite number of sentences. Prior to Davidson, the important Polish logician Alfred Tarski had developed a theory of truth for formal languages. Again without going into details, Davidson argued that a Tarskian theory of truth for a formal language could serve as a theory of meaning for a natural language. He thus bridged a gap between developments in formal logic and the concern of philosophers with meaning within natural languages.

At the end of this chapter, we present an excerpt from a nontechnical paper written by Davidson. Descartes, you will recall, tried to discover what follows from the fact that one can't doubt that one thinks. In this paper, Davidson raises the interesting question of how there could even be such a thing as thinking.

## Saul Kripke

Kripke made important contributions to logic, but his best-known work is the book *Naming and Necessity* (1972, 1980), a work in the philosophy of language. This little book is really just a transcript of three talks Kripke gave (without notes) at Princeton University. In it, Kripke criticized descriptivism, a theory philosophers

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[2] In 1968 Quine presented two lectures titled "Ontological Relativity" at Columbia University.

associate with Frege, Russell, and even more recent writers. According to descriptivism, the meaning (or reference) of a proper name is connected to a *description* of the thing. Thus, for example, "Shakespeare" is connected to a description like "the man who wrote Hamlet." Now, Kripke held that a proper name like "Shakespeare" is a *rigid designator,* which designates the same entity in all possible worlds in which the name has a reference. But a description like "the man who wrote Hamlet," he maintained, *isn't* rigid and can designate *different* things in different possible worlds. Therefore, since Shakespeare couldn't have not been Shakespeare, but since Shakespeare might not have written Hamlet or done any of the many things by which he (Shakespeare) is described, "Shakespeare" is not synonymous with descriptions of Shakespeare.

Kripke criticized a subtler version of descriptivism, according to which a description, while not giving a synonym for a name, still determines the name's reference. We won't go into this, however.

Now, according to Kripke, something becomes a name in a given language when somebody names a specific object, for example, when your parents named you Susan Popoffski or whatever. Future uses of "Susan Popoffski," if connected to your original naming by causal chains of designation running through a community of speakers, designate you as well. For example, your parents taught you your name, you met other people and told them your name, you grew up and became famous, and still others learned your name and taught it to still others, and so on. Uses of your name by those in this chain are linked to each other causally; this is referred to as the causal theory of reference, Kripke's alternative to descriptivism.

Who cares? Kripke's refutation of descriptivism was important in the philosophical discussions about the meaning and reference of proper names that had been going on for decades. It was also important because it contradicted the widely held belief of philosophers that *necessary* truths are all *a priori* truths. We'll briefly explain these concepts.

A *necessary truth* is a statement that could not possibly be false—a statement true in all possible worlds. A necessary truth is the opposite of a *contingent truth,* a statement that is true but could have been false—like "Barack Obama is married." An *a priori truth,* on the other hand, is a statement known to be true independently of any experience, like "Squares have four sides." Its opposite is an *a posteriori truth,* a statement that is known to be true through experience. So on the one hand we have the **necessary/contingent** pair, and on the other we have the **a priori/a posteriori** pair. Prior to Kripke, many philosophers ran these two distinctions together by holding that necessary truths are all true a priori and that contingent truths are all true a posteriori. Kripke dissented from this view.

A simple example will explain his thinking, which is very interesting regardless of its place in the history of philosophy. Suppose one and the same thing has two different names, "x" and "y"; and suppose that at first you don't happen to know that "x" and "y" are two distinct names for the very same thing. For example, in the evening you might think you were looking at star x in the eastern sky, and just before dawn you might think you were looking at a different star, star y, in the western sky. Suppose you then discover that "x" and "y" designate the same object. (In fact, supposedly people once thought Hesperus and Phosphorus were the

names of two different celestial objects; later, it turned out these were just different names for the same thing, namely, the planet Venus.) Since the names "x" and "y" are rigid designators, when you learned that "x and y are the very same thing," your discovery would count as an a posteriori discovery of a necessary truth. Which means that "necessary" doesn't always accompany "a priori."

An important connected metaphysical topic discussed by Kripke is essentialism, the idea that things have essential properties, properties they cannot not have. Kripke thought that essentialism could be maintained only by distinguishing between a priori truths and necessary truths, as he had done. For example, an essential property of this table is that it is made out of wood. Therefore, it could not possibly have been made out of ice. If it had been made out of ice, it would not be this table, but some other thing. Thus, the statement that this table, if it exists at all, is not made out of ice, is a necessary truth. But it is *not* an a priori truth, because it requires experience to find out that it is made out of wood.

This has repercussions for the mind/body problem, which Kripke addressed as well. Philosophers who subscribed to identity theory, according to which each mind state is identical to some brain state, typically said that the identity is contingent. But according to Kripke, the name of a mental state (e.g., "depression") and the name of a brain process (e.g., "brain activity X") designate things with different essential properties. This means that what they name cannot be equated in the first place.

The identity theorist's reasons for saying that mind state/brain state identity is contingent, Kripke argued, are reasons for saying that they are not identical in the first place.

This all is perhaps somewhat technical, but *Naming and Necessity* is fairly easy to read, and is philosophically very important. "In the philosophy of language," Scott Soames wrote, "*Naming and Necessity* is among the most important works ever. . . . Beyond the philosophy of language, it fundamentally changed the way in which much philosophy is done."[3]

## ONTOLOGY

Metaphysics, as you know if you read our first chapter, is the philosophical study of the nature and fundamental features of being. Within analytic philosophy, **ontology** is a branch of metaphysics—the one concerned with what there is. Do physical objects exist? Do facts? Atomic facts? We have touched upon these questions of ontology.

Ontologists also traditionally have been interested in whether and in what sense such things as numbers, sets, points, instants, properties, relations, kinds, propositions, and meanings exist—and here we should add that the pressing question is whether they exist independently of the mind or thought.

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[3] Soames is the author of (among other things) *Analytical Philosophy: Philosophical Analysis in the Twentieth Century,* currently the definitive comprehensive critical exposition of analytic philosophy.

By the middle of the twentieth century, many analytic philosophers believed that questions about what sorts of things exist were best left up to scientists. The most a metaphysician could do, they held, is to disclose (via philosophical analysis) the ontology presupposed by science or mathematics or psychology or common sense. P. F. Strawson (1919–2006), Michael Dummett (b. 1925), and others cast the task in Kant-like terms, assigning to metaphysics the task of revealing the fundamental "structure" of thought about the world. In *Individuals: An Essay in Descriptive Metaphysics* (1959), Strawson derived what he believed were the basic concepts required by all experience. He held, for example, that all experience requires recognition of reidentifiable particulars as falling under general concepts. His approach in *Individuals* was to try to show that "experience" that did not involve this was unimaginable. As to whether there actually is something out there independent of the mind corresponding to general words or to the names of reidentifiable particulars, Strawson declined to speculate.

But metaphysical theorizing about what exists independent of thought is seductive and difficult to stifle. There seem to be genuine questions of ontology that science simply does not touch. It's not surprising, therefore, that recently there has been an increase in metaphysical discussion of the old-fashioned pre-Kantian variety, in which claims are made as to the actual outside-the-mind ontological status of certain philosophically interesting entities. Here is a list of some of the entities currently subject to ontological debate:

- Selves
- Causal relations and physical laws
- Universals (A universal word is a general word, like *tree* or *round,* that applies to more than one particular thing.)
- Bare particulars (Every particular has properties. But what, exactly, is it that has the properties? A bare particular is a particular thing considered apart from whatever properties it exhibits.)
- Necessity, contingency, impossibility, and possible worlds (The concept of a "possible world" is used to explain possibility, necessity, and contingency.)
- Vagueness (Is vagueness merely a feature of language, or is it also a feature of the actual world? The question turns out to be enormously difficult.)
- Social constructions (A social construction is an artifact of a culture's customs, conventions, mores, and laws; it is not created by nature. "Housewife" and "graduate student," for example, denote social constructions, rather than biological categories. Other categories are more controversial philosophically: are the categories "male," "female," and "transsexual" social constructions? Could it be that *every* category is a social construction? Could it be that *reality* is a social construction?)
- Mereological sums and constituted objects (The **mereological sum** of two or more particulars is the whole consisting of the particulars. Bruder's Ford

is a mereological sum of a group of atoms. His Ford also is constituted of automotive parts. It also is made out of steel. What is the relationship between the Ford and these various constituents and parts?)

## Meta-Ontology

Not merely are the ontological status of universals and so forth the subjects of philosophical debate. Ontology itself is currently subject to discussion: Can ontological investigation disclose objective truth?

According to **ontological realism** it can; according to **ontological anti-realism** it cannot. Anti-realists include "descriptive metaphysicians" like Strawson, who in effect constrain metaphysics to conceptual exploration. Anti-realists also include those who dismiss metaphysical issues as mostly trivial questions of semantics. There is no consensus as to who is correct.

## PHILOSOPHICAL QUESTIONS IN QUANTUM MECHANICS[4]

Quantum mechanics is one of the most successful scientific theories ever produced. It makes numerous bold, precise predictions that have repeatedly been confirmed by experiment. It explains a diverse range of phenomena such as the blueness of the sky, radioactivity, and the structure of the atom. Moreover, it has directly led to the development of a great number of technological marvels: silicon chips, lasers, and MRIs would have never been invented without quantum mechanics. Along with Einstein's theory of relativity, quantum theory forms the foundation of modern physics. But quantum mechanics is not only one of the most successful scientific theories, it is also one of the *weirdest*. It is so weird, and conflicts so much with our commonsense picture of the world and the *classical* physics that preceded it, that the dominant attitude of physicists toward quantum mechanics may be described as "shut up and calculate."[5] In other words, many physicists ignore questions about what quantum mechanics says about the world and focus on solving the equations that allow them to make such accurate predictions and that allow engineers to produce smartphones, dvd players, etc. But philosophers are interested in precisely the question about what quantum mechanics says about the world, especially when it disagrees with the everyday ideas we adopt unreflectively. In this section, we will discuss some of these philosophical questions about quantum mechanics and some of the answers that have been proposed for them.

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[4] By Zanja Yudell.

[5] Possibly due to David Mermin (http://physicstoday.org/journals/doc/PHTOAD-ft/vol_57/iss_5/10_1.shtml?bypassSSO=1). Note that not all physicists take this attitude to quantum mechanics.

There are so many weird things about quantum mechanics, and so many interesting philosophical questions about it, that we won't possibly be able to consider all of them in this short section. Instead, we will focus on some of the features of quantum mechanics that have come to seem most significant to both philosophers and others who have thought seriously about quantum mechanics.

There is one feature of quantum mechanics in particular that accounts for most of the profound philosophical difficulties associated with the theory. To illustrate this idea, consider a simple system consisting of two boxes and one particle. If we know that there is one particle in the boxes somewhere, we normally think that there are two distinct possiblities: either the particle is in the first box, or it is in the second box. We can call each of these possibilities *states* of the system. So the normal idea is that there are two possible states that this system can take, which we can call Particle in Box 1 and Particle in Box 2. In quantum mechanics, this would be written as "|Particle in Box 1>" and "|Particle in Box 2>." From this point one, we shall follow this notation system as well.

But quantum mechanics says something peculiar about this simple system. If it's possible for it to be in these two states, quantum mechanics also allows it to be in an infinity of other distinct states that are "combinations" of these two states. For example, there's a state that we might want to describe as the particle being 50% |Particle in Box 1> and 50% |Particle in Box 2>.[6] But there's also a state that is 75% |Particle in Box 1> and 25% |Particle in Box 2>, and 10% |Particle in Box 1> and 90% |Particle in Box 2>, etc., for any combination you can think of. Each of these combinations of the two original states is called a **superposition.** The description of superpositions as "combinations" of states is just a loose way of talking about an idea which is very rigorous and clear mathematically, but we will focus on what it means for a system to be in a superposition.

So what does it mean for the system to be in one of these superpositions? That question is one of the most controversial questions about quantum mechanics. Consider the first superposition, which is 50% |Particle in Box 1> and 50% |Particle in Box 2>. One thought is that in such a state there are two particles, one in Box 1 and one in Box 2, with each particle "grayed out" like Marty McFly in *Back to the Future*. Perhaps a system in the state 10% |Particle in Box 1> and 90% |Particle in Box 2> has a much "fainter" particle in Box 1 and the particle in Box 2 is nearly "solid." But this is a misleading way of thinking about the situation: there is only one particle. Indeed, if you were to open up the boxes and look, you would only ever find one particle, either in Box 1 or in Box 2. You would never see the superposition.

So quantum mechanics describes superpositions that are hard to understand and that are never observed when we observe, or *measure*, the system. Making sense of what superpositions are and why they seem to disappear when we make measurements is perhaps the most vexing issue in the philosophy of quantum mechanics and has come to be known as the **measurement problem.**

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[6] There are actually two such states, although it would be too complicated to get into the difference between these two states.

|Particle in Box 1 >

Box 1          Box 2

|Particle in Box 2 >

Box 1          Box 2
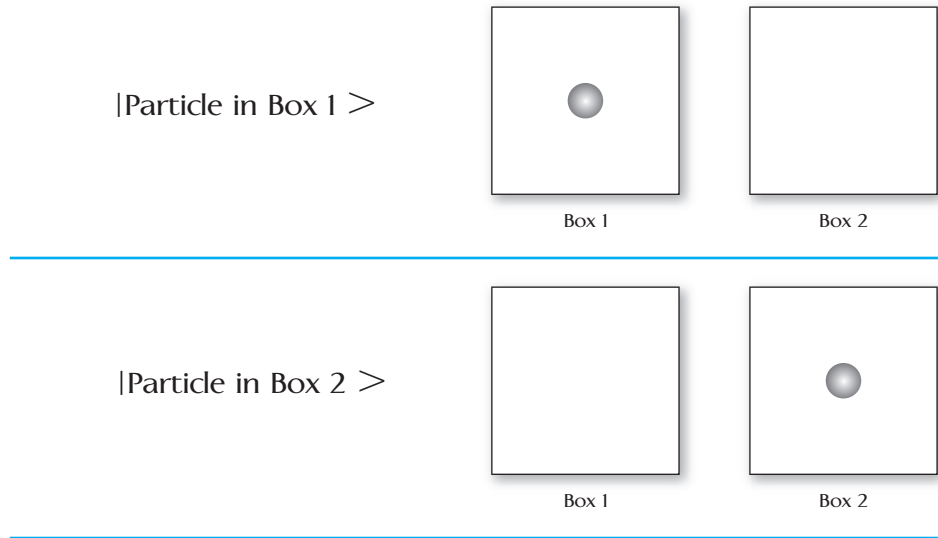
By the way, you might wonder why physicists would bother postulating superpositions if they never see them and they cause so much trouble. The short answer, which is all we have room for here, is that they are a necessary feature of the mathematics of quantum mechanics for it to reproduce the empirical results of many, many experiments. You could solve the measurement problem easily by getting rid of superpositions, but then you'd have an accuracy problem, since the theory wouldn't make very accurate predictions.

The responses to the measurement problem are called interpretations of quantum mechanics. There are many such interpretations, and they are all weird in various ways. The standard or orthodox interpretation is often called the **Copenhagen interpretation,**[7] and is most commonly accepted by physicists themselves. According to the Copenhagen interpretation, when a system is in the state 50% |Particle in Box 1> and 50% |Particle in Box 2>, there is simply no fact about whether the particle is in Box 1 or in Box 2—it's meaningless to ask which box it's in. However, when someone decides to measure the system by opening up one of the boxes and looking, then the system "chooses" to be in either the state |Particle in Box 1> or the state |Particle in Box 2>. When the system chooses one of the two states, it is said to *collapse* into that state. How the system chooses is a mysterious process governed only by a probabilistic rule. In this case, there is a 50% chance that the particle will be found in Box 1, and a 50% chance that it will be found in Box 2. That means that if you set up a bunch of systems in the original superposition and then opened up the boxes to measure the systems, about half of the time you would find the particle in Box 1 and about half the time you would find the particle in Box 2. If you started with a different superposition, say 10% |Particle in Box 1> and 90% |Particle in Box 2>, then there would be only a

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[7] There is in fact no single Copenhagen interpretation, but the view described in the text describes what is commonly called the Copenhagen interpretation.

10% chance of finding the particle in Box 1, and a 90% chance of finding the particle in Box 2.

Now, the funny thing about the Copenhagen interpretation is that it attributes a kind of causal power to the act of measurement. When you measure a system and thereby collapse it into one of the two states, you have changed its physical state, just like igniting a stick of dynamite changes its physical state, and this change has real consequences for the future behavior of the system. So it is natural to wonder what exactly a measurement is and what makes it so special that it has this power to have such a significant influence on the world. Many physicists are happy to use Justice Stewart's test for obscenity ("I know it when I see it") to determine what a measurement is, but this standard still leaves it mysterious how such a vaguely described and apparently nonphysical process could have influence on the state of reality. One approach, associated with the physicists John von Neumann and Eugene Wigner, is to embrace the idea that there is something about the very nature of the observer that causes a quantum system to collapse. On this approach, our consciousness, often imagined as a nonphysical substance, has a kind of special power reserved to it that merely physical things like electrons and protons do not. Some have thus taken quantum mechanics to be evidence for mind-body *dualism,* although there are other interpretations of quantum mechanics in which conciousness plays no role in producing collapse. In some popular descriptions of this view, found for example in the movie *What the Bleep Do We Know!?*, conscious observers have the power to directly influence reality and shape it to their will. But this idea is a blatant misunderstanding of quantum mechanics. While it is true on the Copenhagen interpretation that your actions can influence reality, they do it in a fundamentally probabilistic way. You can choose whether or not to look in the boxes, and that will make a difference as to whether the system collapses, but you can't choose to make the particle appear in Box 1.

This fact that probability is a fundamental feature of reality is another notable feature of the Copenhagen interpretation. Prior to the development of quantum mechanics, classical physics had treated probability as an essentially *epistemic* notion (An "epistemic" notion is one that refers to epistemology). It was thought that the fact that a coin flip had a 50% chance of turning up heads merely reflected our ignorance about what was actually a determinate fact— even if we don't know whether the coin will land heads or tails, a powerful enough computer armed with the laws of physics and all the facts about the coin before the flip could predict exactly what would happen. On this classical view, everything that happens in the world is **deterministic**, that is it is completely determined by what went before. But quantum mechanics, as understood by the Copenhagen interpretation, makes the world *indeterministic*. In other words, prior to the flip, there is no fact about whether the coin will land heads or tails. It's completely a matter of chance. This feature of quantum mechanics is a dramatic departure from classical physics, and is the source of Einstein's criticism that "God doesn't play dice with the world." Although indeterminacy was and remains a shocking idea to some, it has also seemed to some philosophers to provide the hope of restoring the possibility of free will. If all physical events are ultimately indeterministic and my actions are physical events, then perhaps my actions can be said to be free and I can be ultimately responsible for my actions.

Unfortunately, it's not as cut and dried as that. Some might say that a random event does not seem any more free than a determined one. If I'm deciding whether to lie or tell the truth and an electron in my brain randomly collapses in a way that leads to my telling the truth, it does not seem as if I am any more responsible for that decision than if the state of my brain had deterministically led to the same result. The debate on this issue is far from settled, but it is clear that quantum indeterminacy does not automatically solve the problem.

Einstein's opposition to quantum indeterminacy is well known, but his most profound challenge to quantum mechanics was his claim that the theory is incomplete. Einstein and his collaborators Boris Podolsky and Nathan Rosen proposed a thought experiment, now known as EPR, that was meant to demonstrate that there must be some physics that quantum mechanics fails to represent. That thought experiment has instead led to a deep insight about quantum mechanics and the world we live in. In one version of the EPR thought experiment, two particles travel in opposite directions from a common source, one going to the left and one going to the right. Once they have traveled a great distance, the lefthand particle enters a device that either puts it in Box 1 or Box 2, and the righthand particle enters a similar device that puts it in Box 3 or Box 4. According to quantum mechanics, the particles can be prepared so that the lefthand particle ends up in a superposition of 50% |lefthand particle in Box 1> + 50% |lefthand particle in Box 2>, and the right hand particle ends up in a superposition of 50% |righthand particle in Box 3> + 50% |righthand particle in Box 4>. But the theory also says that the two particles can be correlated, so that if the lefthand particle ends up in Box 1, then the righthand particle ends up in Box 3, and if the lefthand particle ends up in Box 2, then the righthand particle ends up in Box 4. So the total state can be represented as 50% |lefthand particle in Box 1> |righthand particle in Box 3> + 50% |lefthand particle in Box 2> |righthand particle in Box 4>.

Now according to the Copenhagen interpretation, if you open the boxes on the lefthand side, you will force the superposition to collapse so that the lefthand particle will end up in either Box 1 or Box 2. Let's say it ends up in Box 1. Since the two particles are correlated, that means that if your friend looks in the boxes on the right, she should see the righthand particle in Box 3. If you had seen your particle in Box 2, then your friend would certainly have seen her particle in Box 4. We forgot to mention that you are in a lab on earth, but your friend is in a spaceship circling Alpha Centauri, over four light years away (the experiment took quite a while to set up). So, according to Einstein, when you look in your boxes, there's no way for the collapse of the superposition to affect the boxes all the way over near Alpha Centauri. Instead, he claims, there was no collapse—your particle was already in Box 1 before you looked, and your friend's particle was already in Box 3 before she looks. Since quantum mechanics doesn't say which boxes the particles are in, it's *incomplete.*

A physicist named John Bell turned the tables on Einstein by showing mathematically that if a theory were complete in Einstein's sense, it would have to make empirical predictions that were contrary to the predictions of quantum mechanics. The predictions were then tested (a thought experiment became a real

experiment!) by Alain Aspect and others, and the results matched the predictions of quantum mechanics. Einstein's mistake had been to assume that the collapse caused by your observations on earth could not affect what was happening near Alpha Centauri. He did so because he thought that all physical interactions were *local,* which roughly means that they can only affect things nearby. Events on the earth can influence things happening near Alpha Centauri, but it will take over four years for the influences to locally propagate through space to eventually reach Alpha Centauri. Einstein thought that physics was local because his own theory of relativity seems to require locality. But it is now generally accepted that *nonlocality* is an essential feature of quantum mechanics, especially versions like the Copenhagen interpretation that involve collapse. In other words, when you look in the boxes on earth, you are instantaneously causing a physical change near Alpha Centauri. Nonlocality puts quantum mechanics in tension with the theory of relativity, but it also violates our intuitions about nature. If our universe is non-local, then events occurring in the distant parts of the universe, beyond what we can ever see, can have an immediate impact on what's happening to us. However, because of quantum indeterminacy, this influence is quite peculiar, and can't be used, for example, for sending signals instantaneously. When we do send a space-ship to Alpha Centauri, it will still take over four years for the news to get back to us that it's safely arrived.

One of the most significant alternatives to the Copenhagen interpretation is called the *many-worlds* or *Everett interpretation.* According to the many-worlds in-terpretation, superpositions never collapse. Yet when you go to look into the boxes, you will not see a superposition. So what has happened? You have become part of the superposition! More specifically, there is one part of the superposition in which you are seeing the particle in Box 1, and there is another part in which you are see-ing the particle in Box 2, and both events are equally real and happening at the same time in the same space. You only ever experience seeing one of the two states, but there's "another you" that's seeing the other state. These two different possibilities are called *branches,* because they are like two branches of a tree that grow from the initial observation. And as each alternate you goes on to observe more superpositions, more branches are created. Each branching event doesn't just create new versions of you, it creates entire new worlds. So now you can see why this view is the many-worlds interpretation—every superposition you observe leads to a new world, every superposition that I observe leads to a new world, and so on for every observer. There will indeed be many, many worlds.

This idea might strike you as even weirder than some of the ideas associated with the Copenhagen interpretation. If so, you might wonder why it is such a popular idea among both physicists and philosophers. It does have some advan-tages. For one thing, the many-worlds interpretation is deterministic. After the measurement event, only one thing can happen: the particle will be seen in Box 1 *and* it will be seen in Box 2! Moreover, the many-worlds interpretation doesn't make essential use of the concept of measurement, and so doesn't need to get into the messy question of whether consciousness plays a special role in physics. It also may be that the many-worlds interpretation is local, because there is no collapse event to have nonlocal influence. These sorts of advantages might not seem worth

it, given that we are forced to believe in a multiplicity of similar worlds all co-existing but invisible to each other. But how are we to compare the costs and benefits of such bizarre pictures of the world?

Indeed, there are many other interpretations of quantum mechanics that we have not yet mentioned, such as Bohmian mechanics, modal interpretations, the Ghirardi-Rimini-Weber theory, and others. Each of these interpretations has its own bizarre consequences that diverge radically from our intuitions about the world. Stepping back a bit, we can see that the legacy of quantum mechanics is that the world is much, much stranger than what we ever could have dreamed—we just don't know which of the many strange ways it could be is the right one.

## SELECTION 9.1

# The Elimination of Metaphysics*

*A. J. Ayer*

[*A. J. Ayer was the most famous British exponent of logical positivism. In this selection, Ayer sets forth and elaborates on the verifiability criterion of meaning.*]

The traditional disputes of philosophers are, for the most part, as unwarranted as they are unfruitful. The surest way to end them is to establish beyond question what should be the purpose and method of a philosophical inquiry. And this is by no means so difficult a task as the history of philosophy would lead one to suppose. For if there are any questions which science leaves it to philosophy to answer, a straightforward process of elimination must lead to their discovery.

We may begin by criticizing the metaphysical thesis that philosophy affords us knowledge of a reality transcending the world of science and common sense. Later on, when we come to define metaphysics and account for its existence, we shall find that it is possible to be a metaphysician without believing in a transcendent reality; for we shall see that many metaphysical utterances are due to the commission of logical errors, rather than to a conscious desire on the part of their authors to go beyond the limits of experience. But it is convenient for us to take the case of those who believe that it is possible to have knowledge of a transcendent reality as a starting-point for our discussion. The arguments which we use to refute them will subsequently be found to apply to the whole of metaphysics.

One way of attacking a metaphysician who claimed to have knowledge of a reality which transcended the phenomenal world would be to inquire from what premises his propositions were deduced. Must he not begin, as other men do, with the evidence of his senses? And if so, what valid process of reasoning can possibly lead him to the conception of a transcendent reality? Surely from empirical premises nothing whatsoever concerning the properties, or even the existence, of anything super-empirical can legitimately be inferred. But this objection would be met by a denial on the part of the metaphysician that his assertions were ultimately based on the evidence of his senses. He would say that he was endowed with a faculty of intellectual intuition which enabled him to know facts that could not be known through sense-experience. And even if it could be shown that he was relying on empirical premises, and that his venture into a nonempirical world was therefore logically unjustified, it would not follow that the assertions which he made concerning this nonempirical world could not be true. For the fact that a conclusion does not follow from its putative premise is not sufficient to show that it is false. Consequently one cannot overthrow a system of transcendent metaphysics merely by

criticizing the way in which it comes into being. What is required is rather a criticism of the nature of the actual statements which comprise it. And this is the line of argument which we shall, in fact, pursue. For we shall maintain that no statement which refers to a "reality" transcending the limits of all possible sense-experience can possibly have any literal significance; from which it must follow that the labors of those who have striven to describe such a reality have all been devoted to the production of nonsense. . . .

. . . Our charge against the metaphysician is not that he attempts to employ the understanding in a field where it cannot profitably venture, but that he produces sentences which fail to conform to the conditions under which alone a sentence can be literally significant. Nor are we ourselves obliged to talk nonsense in order to show that all sentences of a certain type are necessarily devoid of literal significance. We need only formulate the criterion which enables us to test whether a sentence expresses a genuine proposition about a matter of fact, and then point out that the sentences under consideration fail to satisfy it. And this we shall now proceed to do. We shall first of all formulate the criterion in somewhat vague terms, and then give the explanations which are necessary to render it precise.

The criterion which we use to test the genuineness of apparent statements of fact is the criterion of verifiability. We say that a sentence is factually significant to any given person, if, and only if, he knows how to verify the proposition which it purports to express—that is, if he knows what observations would lead him, under certain conditions, to accept the proposition as being true, or reject it as being false. If, on the other hand, the putative proposition is of such a character that the assumption of its truth, or falsehood, is consistent with any assumption whatsoever concerning the nature of his future experience, then, as far as he is concerned, it is, if not a tautology, a mere pseudo-proposition. The sentence expressing it may be emotionally significant to him; but it is not literally significant. And with regard to questions the procedure is the same. We inquire in every case what observations would lead us to answer the question, one way or the other; and, if none can be discovered, we must conclude that the sentence under consideration does not, as far as we are concerned, express a genuine question, however strongly its grammatical appearance may suggest that it does.

As the adoption of this procedure is an essential factor in the argument of this book, it needs to be examined in detail.

In the first place, it is necessary to draw a distinction between practical verifiability, and verifiability in principle. Plainly we all understand, in many cases believe, propositions which we have not in fact taken steps to verify. Many of these are propositions which we could verify if we took enough trouble. But there remain a number of significant propositions, concerning matters of fact, which we could not verify even if we chose; simply because we lack the practical means of placing ourselves in the situation where the relevant observations could be made. A simple and familiar example of such a proposition is the proposition that there are mountains on the farther side of the moon.[1] No rocket has yet been invented which would enable me to go and look at the farther side of the moon, so that I am unable to decide the matter by actual observation. But I do know what observations would decide it for me, if, as is theoretically conceivable, I were once in a position to make them. And therefore I say that the proposition is verifiable in principle, if not in practice, and is accordingly significant. On the other hand, such a metaphysical pseudo-proposition as "the Absolute enters into, but is itself incapable of, evolution and progress,"[2] is not even in principle verifiable. For one cannot conceive of an observation which would enable one to determine whether the Absolute did, or did not, enter into evolution and progress. Of course it is possible that the author of such a remark is using English words in a way in which they are not commonly used by English-speaking people, and that he does, in fact, intend to assert something which could be empirically verified. But until he makes us understand how the proposition that he wishes to express would be verified, he fails to communicate anything to us. And if he admits, as I think the author of the remark in question would have admitted, that his words were not intended to express either a tautology or a proposition which was capable, at least in principle, of being verified, then it follows that he has made an utterance which has no literal significance for himself.

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[1] This example has been used by Professor Schlick to illustrate the same point.

[2] A remark taken at random from *Appearance and Reality,* by F. H. Bradley.

A further distinction which we must make is the distinction between the "strong" and the "weak" sense of the term "verifiable." A proposition is said to be verifiable, in the strong sense of the term, if, and only if, its truth could be conclusively established in experience. But it is verifiable, in the weak sense, if it is possible for experience to render it probable. In which sense are we using the term when we say that a putative proposition is genuine only if it is verifiable?

It seems to me that if we adopt conclusive verifiability as our criterion of significance, as some positivists have proposed,[3] our argument will prove too much. Consider, for example, the case of general propositions of law—such propositions, namely, as "arsenic is poisonous"; "all men are mortal"; "a body tends to expand when it is heated." It is of the very nature of these propositions that their truth cannot be established with certainty by any finite series of observations. But if it is recognized that such general propositions of law are designed to cover an infinite number of cases, then it must be admitted that they cannot, even in principle, be verified conclusively. And then, if we adopt conclusive verifiability as our criterion of significance, we are logically obliged to treat these general propositions of law in the same fashion as we treat the statements of the metaphysician.

In face of this difficulty, some positivists[4] have adopted the heroic course of saying that these general propositions are indeed pieces of nonsense, albeit an essentially important type of nonsense. But here the introduction of the term "important" is simply an attempt to hedge. It serves only to mark the authors' recognition that their view is somewhat too paradoxical, without in any way removing the paradox. Besides, the difficulty is not confined to the case of general propositions of law, though it is there revealed most plainly. It is hardly less obvious in the case of propositions about the remote past. For it must surely be admitted that, however strong the evidence in favor of historical statements may be, their truth can never become more than highly probable. And to maintain that they also constituted an important, or unimportant, type of nonsense would be unplausible, to say the very least. Indeed, it will be our contention that no proposition, other than a tautology, can possibly be anything more than a probable hypothesis. And if this is correct, the principle that a sentence can be factually significant only if it expresses what is conclusively verifiable is self-stultifying as a criterion of significance. For it leads to the conclusion that it is impossible to make a significant statement of fact at all.

[3] E.g., M. Schlick, "Positivismus and Realismus," *Erkenntnis,* Vol. I, 1930. F. Waismann, "Logische Analyse des Warschein-lichkeitsbegriffs," *Erkenntnis,* Vol. I, 1930.

[4] E.g., M. Schlick, "Die Kausalität in der gegenwärtigen Physik," *Naturwissenschaft,* Vol. 19, 1931.

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SELECTION 9.2

# Identity and Necessity★                              *Saul Kripke*

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[*What Kripke writes here relates to the idea that psychological states and processes "are contingently identical to" brain states and processes. Terminology: An identity judgment or statement equates what is designated by one term "X" with what is designated by another term "Y." In other words, it says "X = Y"; for example, "Mark Twain is Samuel Clemens." A contingent judgment, if true, theoretically could have been false; that is, it is not true in all possible worlds. For example, "Shakespeare wrote Hamlet," though true, could have been false. To know that an a posteriori judgment is true or false, you have to know more than just the meaning of the words in it.*]

. . . Let me turn to the case of heat and the motion of molecules. Here surely is a case that is contingent identity! Recent philosophy has emphasized this again and again. So, if it is a case of contingent identity, then

let us imagine under what circumstances it would be false. Now, concerning this statement I hold that the circumstances philosophers apparently have in mind as circumstances under which it would have been false are not in fact such circumstances. First, of course, it is argued that "Heat is the motion of molecules" is an *a posteriori* judgement; scientific investigation might have turned out otherwise. As I said before, this shows nothing against the view that it is necessary—at least if I am right. But here, surely, people had very specific circumstances in mind under which, so they thought, the judgement that heat is the motion of molecules would have been false. What were these circumstances? One can distill them out of the fact that we found out empirically that heat is the motion of molecules. How was this? What did we find out first when we found out that heat is the motion of molecules? There is a certain external phenomenon which we can sense by the sense of touch, and it produces a sensation which we call "the sensation of heat." We then discover that the external phenomenon which produces this sensation, which we sense, by means of our sense of touch, is in fact that of molecular agitation in the thing that we touch, a very high degree of molecular agitation. So, it might be thought, to imagine a situation in which heat would not have been the motion of molecules, we need only imagine a situation in which we would have had the very same sensation and it would have been produced by something other than the motion of molecules. Similarly, if we wanted to imagine a situation in which light was not a stream of photons, we could imagine a situation in which we were sensitive to something else in exactly the same way, producing what we call visual experiences, though not through a stream of photons. To make the case stronger, or to look at another side of the coin, we could also consider a situation in which we *are* concerned with the motion of molecules but in which such motion does not give us the sensation of heat. And it might also have happened that we, or, at least, the creatures inhabiting this planet, might have been so constituted that, let us say, an increase in the motion of molecules did not give us this sensation but that, on the contrary, a slowing down of the molecules did give us the very same sensation. This would be a situation, so it might be thought, in which heat would not be the motion of molecules, or, more precisely, in which temperature would not be mean molecular kinetic energy.

But I think it would not be so. Let us think about the situation again. First, let us think about it in the actual world. Imagine right now the world invaded by a number of Martians, who do indeed get the very sensation that we call "the sensation of heat" when they feel some ice which has slow molecular motion, and who do not get a sensation of heat—in fact, maybe just the reverse—when they put their hand near a fire which causes a lot of molecular agitation. Would we say, "Ah, this casts some doubt on heat being the motion of molecules, because there are these other people who don't get the same sensation"? Obviously not, and no one would think so. We would say instead that the Martians somehow feel the very sensation we get when we feel heat when they feel cold and that they do not get a sensation of heat when they feel heat. But now let us think of a counterfactual situation. Suppose the earth had from the very beginning been inhabited by such creatures. First, imagine it inhabited by no creatures at all: then there is no one to feel any sensations of heat. But we would not say that under such circumstances it would necessarily be the case that heat did not exist; we would say that heat might have existed, for example, if there were fires that heated up the air.

Let us suppose the laws of physics were not very different: Fires do heat up the air. Then there would have been heat even though there were no creatures around to feel it. Now let us suppose evolution takes place, and life is created, and there are some creatures around. But they are not like us, they are more like the Martians. Now would we say that heat has suddenly turned to cold, because of the way the creatures of this planet sense it? No, I think we should describe this situation as a situation in which, though the creatures on this planet got our sensation of heat, they did not get it when they were exposed to heat. They got it when they were exposed to cold. And that is something we can surely well imagine. We can imagine it just as we can imagine our planet being invaded by creatures of this sort. Think of it in two steps. First there is a stage where there are no creatures at all, and one can certainly imagine the planet still having both heat and cold, though no one is around to sense it. Then the planet comes through an evolutionary process to be peopled with beings of different neural structure from ourselves. Then these creatures could be such that they were insensitive to heat; they did not feel it in the way we do; but on the other hand, they felt cold in much the same way that we feel heat. But still, heat, would be heat,

and cold would be cold. And particularly, then, this goes in no way against saying that in this counterfactual situation heat would still *be* the molecular motion, *be* that which is produced by fires, and so on, just as it would have been if there had been no creatures on the planet at all. Similarly, we could imagine that the planet was inhabited by creatures who got visual sensations when there were sound waves in the air. We should not therefore say, "Under such circumstances, sound would have been light." Instead we should say, "The planet was inhabited by creatures who were in some sense visually sensitive to sound, and maybe even visually sensitive to light." If this is correct, it can still be and will still be a necessary truth that heat is the motion of molecules and that light is a stream of photons.

To state the view succinctly: we use both the terms "heat" and "the motion of molecules" as rigid designators for a certain external phenomenon. Since heat is in fact the motion of molecules, and the designators are rigid, by the argument I have given here, it is going to be *necessary* that heat is the motion of molecules. What gives us the illusion of contingency is the fact we have identified the heat by the contingent fact that there happen to be creatures on this planet—(namely, ourselves) who are sensitive to it in a certain way, that is, who are sensitive to the motion of molecules or to heat—these are one and the same thing. And this is contingent. So we use the description, "that which causes such and such sensations, or that which we sense in such and such a way," to identify heat. But in using this fact we use a contingent property of heat, just as we use the contingent property of Cicero as having written such and such works to identify him. We then use the terms "heat" in the one case and "Cicero" in the other *rigidly* to designate the objects for which they stand. And of course the term "the motion of molecules" is rigid; it always stands for the motion of molecules, never for any other phenomenon. So, as Bishop Butler said, "everything is what it is and not another thing." Therefore, "Heat is the motion of molecules" will be necessary, not contingent, and one only has the *illusion* of contingency in the way one could have the illusion of contingency in thinking that this table might have been made of ice. We might think one could imagine it, but if we try, we can see on reflection that what we are really imagining is just there being another lectern in this very position here which was in fact made of ice. The fact that we may identify this lectern by being the object we see and touch in such and such a position is something else.

Now how does this relate to the problem of mind and body? It is usually held that this is a contingent identity statement just like "Heat is the motion of molecules." That cannot be. It cannot be a contingent identity statement just like "Heat is the motion of molecules" because, if I am right, "Heat is the motion of molecules" is not a contingent identity statement.

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SELECTION 9.3

# The Problem of Objectivity*                          *Donald Davidson*

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[*Descartes tried to show that knowledge could be derived from the fact that he thinks. Here, Donald Davidson begins discussing how thought or "propositional attitudes" could be possible in the first place.*]

. . . We should be astonished that there is such a thing as thought. . . .

I am not concerned with the scientific explanation of the existence of thought; my interest is in what makes it possible. Let me state the problem a little more carefully. A thought is defined, at least in part, by the fact that it has a content that can be true or false. The most basic form of thought is belief. But one cannot have a belief without understanding that beliefs may be false—their truth is not in general guaranteed by anything in us. Someone who believes there is a dragon in the closet opens the door and sees there is no dragon. He is *surprised;* this is not what he expected. Awareness of the possibility of surprise,

the entertainment of expectations—these are essential concomitants of belief.

To recognize the chance that we may be wrong is to recognize that beliefs can be tested—belief is personal, and in this sense subjective; truth is objective. The problem is to account for our having the concept of objectivity—of a truth that is independent of our will and our attitudes. Where can we have acquired such a concept? We cannot occupy a position outside our own minds; there is no vantage point from which to compare our beliefs with what we take our beliefs to be about. Surprise—the frustration of expectation—cannot explain our having the concept of objective truth, because we cannot be surprised, or have an expectation, unless we already command the concept. To be surprised is to recognize the distinction between what we thought and what is the case. To have an expectation is to admit that it may be faulted.

Here is another way—a familiar way—to view the problem. We would never know anything about the world around us if it were not for the stimulation of our sensory organs. (There may be exceptions, but they are not important here.) Why should, or how can, such stimulations generate thoughts of anything beyond? And if beliefs of something beyond were prompted, what conceivable test could there be that such beliefs were true, since the test could only involve more sensory stimulations? (It is as if all we know of the outside world is brought to us by messengers. If we doubt the veracity of what they tell us, how can it help to ask further messengers? If the first messengers are untrustworthy, why should the later ones be any more truthful?) The idea that since we do not will the stimulations of our sensory organs we must suppose they have an external cause is no help, for at what distance must the posited cause lie? Why not at the surface of the skin, or even in the brain? Without an answer to this question, there is no answer to the question what our beliefs are about; and without an answer to this question, it makes no sense to talk of belief—or thought in general.

There are many people, including philosophers, psychologists, and particularly those who admire the amazing cleverness of speechless animals, who identify the ability to discriminate items having a certain property with having a concept—with having the concept of being such an item. But I shall not use the word "concept" in this way. My reason for resisting this usage is that if we were to accept it we would be committed to holding that the simplest animals have concepts: even an earthworm, which has so little brain that, if cut in two, each part behaves as the undivided whole did, would have the concepts of dry and moist, of the edible and inedible. Indeed, we should have to credit tomato plants or sunflowers with the concepts of day and night.

I should therefore like to reserve the word "concept" for cases where it makes clear sense to speak of a mistake, a mistake not only as seen from an intelligent observer's point of view, but as seen from the creature's point of view. If an earthworm eats poison, it has not in this sense made a mistake—it has not mistaken one thing for another: it has simply done what it was programmed to do. It did not mistakenly classify the poison as edible: the poison simply provided the stimulus that caused it to eat. Even a creature capable of learning to avoid certain foods cannot, for that reason alone, be said to have the concepts of edibility and inedibility. A creature could construct a "map" of its world without having the idea that it was a *map* of anything—that it was a map—and so might be wrong.

To apply a concept is to make a judgment, to classify or characterize an object or event or situation in a certain way, and this requires application of the concept of *truth*, since it is always possible to classify or characterize something wrongly. To have a concept, in the sense I am giving this word, is, then, to be able to entertain propositional contents: a creature has a concept only if it is able to employ that concept in the context of a judgment. It may seem that one could have the concept of, say, a tree, without being able to think that, or wonder whether, something is a tree, or desire that there be a tree. Such conceptualization would, however, amount to no more than being able to discriminate trees—to act in some specific way in the presence of trees—and this, as I said, is not what I would call having a concept. . . .

These mental attributes are, then, equivalent: to have a concept, to entertain propositions, to be able to form judgments, to have command of the concept of truth. If a creature has one of these attributes, it has them all. To accept this thesis is to take the first step toward recognizing the holism—that is, the essential interdependence—of various aspects of the mental.

Let me dwell briefly on the centrality of the concept of truth. It is not possible to grasp or entertain a proposition without knowing what it would be for it to be true; without this knowledge there would be no answer to the question what proposition was being grasped or entertained. . . .

In order to understand a proposition, one must know what its truth conditions are, but one may or may not be concerned with the question whether it is true. I understand what would have to be the case for it to have rained in Perth, Australia, on May 1st, 1912, but I do not care whether or not it did rain there on that date. I neither believe nor disbelieve that it rained in Perth on May 1st, 1912; I don't even wonder about it. The *attitude* I have towards a proposition—of belief, doubt, wonder, hope, or fear—determines how, if at all, I regard its truth. But if I have *any* attitude towards it, even one of total indifference, I must know its truth conditions. Indeed, there is a clear sense in which I know the truth conditions of every proposition I am capable of expressing or considering.

To know the truth conditions of a proposition, one must have the concept of truth. There is no more central concept than that of truth, since having any concept requires that we know what it would be for that concept to apply to something—to apply truly, of course. The same holds for the concept of truth itself. To have the concept of truth is to have the concept of objectivity, the notion of a proposition being true or false independent of one's beliefs or interests. In particular, then, someone who has a belief, who holds some proposition to be true or false, knows that that belief may be true or false. In order to be right or wrong, one must know that it is possible to be right or wrong.

Entertaining any proposition, whatever one's attitude toward the proposition may be, entails believing many other propositions. If you wonder whether you are seeing a black snake, you must have an idea of what a snake is. You must believe things such as: a snake is an animal, it has no feet, it moves with sinuous movement, it is smaller than a mountain. If it is a black snake, then it is a snake and it is black. If it is black, it is not green. Since you wonder what you are seeing, you must know what seeing is: that it requires the use of the eyes, that you can see something without touching it, and so on. I do not wish to give the impression that there is a fixed list of things you must believe in order to wonder whether you are seeing a black snake. The *size* of the list is very large, if not infinite, but membership in the list is indefinite. What is clear is that without many of the sort of beliefs I have mentioned, you cannot entertain the proposition that you are seeing a black snake; you cannot believe or disbelieve that proposition, wish it were false, ask whether it is true, or demand that someone make it false. . . .

We must conclude, I think, that it is not possible for a creature to have a single, isolated, thought. . . .

It follows from what I have said that many of our beliefs must be true. The reason, put briefly if misleadingly, is that a belief owes its character in part to its relations to other, true, beliefs. Suppose most of my beliefs about what I call snakes were false; then my belief that I am seeing what I call a "snake" would not be correctly described as being about a snake. Thus my belief, if it is to be about a snake, whether it is a true belief or a false one, depends on a background of true beliefs, true beliefs about the nature of snakes, of animals, of physical objects of the world. But though many beliefs must therefore be true, most beliefs can be false. This last remark is dangerously ambiguous. It means: with respect to most of our beliefs, any particular one may be false. It does not mean: with respect to the totality of our beliefs, most may be false, for the possibility of a false belief depends on an environment of truths.

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## What Is Social Construction?*

*Paul A. Boghossian*

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[*Are the entities postulated by science mere social constructions? Are the beliefs in those things, or the justifications of those beliefs, social constructions? Here philosopher of science Paul A. Boghossian argues they are not.*]

### Socially Constructed Things

Money, citizenship and newspapers are transparent social constructions because they obviously could not have existed without societies. Just as obviously, it would seem, anything that could have—or that did—exist independently of societies could *not* have been socially constructed: dinosaurs, for example,

or giraffes, or the elementary particles that are supposed to be the building blocks of all matter and that physicists call "quarks." How could they have been socially constructed if they existed *before* societies did?

Yet when we turn to some of the most prominent texts in the social construction literature, we find an avalanche of claims to the effect that it is precisely such seemingly mind- and society-independent items that are socially constructed. . . .

But it is not easy to make sense of the thought that facts about elementary particles or dinosaurs are a *consequence* of scientific theorizing. How could scientific theorizing have caused it to be true that there were dinosaurs or that there are quarks? Of course, science made it true that we *came to believe* that dinosaurs and quarks exist. Since we believe it, we *act as though* dinosaurs and quarks exist. If we allow ourselves some slightly florid language, we could say that *in our world* dinosaurs and quarks exist, in much the way as we could say that in the world of Shakespeare's *Hamlet,* Ophelia drowns. So, still speaking in this vein, we could say that science made it true that in our world there are dinosaurs and quarks. But all we could coherently mean by this is that science made it true that *we came to believe that* dinosaurs and quarks exist. And that no one disputes. Despite all the evidence in their favor, these beliefs may still be false and the only thing that will make them true is whether, out there, there really were dinosaurs and there really are quarks. Surely, science cannot construct those things; at best, it can discover them. . . .

### Socially Constructed Belief

If the preceding considerations are correct, social construction talk does not cogently apply to the *facts* studied by the natural sciences; does it fare any better when applied to the *beliefs* about those facts produced by those sciences?

The issue is not whether science is a social enterprise. Of course, it is. Science is conducted collectively by human beings who come equipped with values, needs, interests and prejudices. And these may influence their behavior in a variety of potentially profound ways: they may determine what questions they show an interest in, what research strategy they place their bets on, what they are willing to fund, and so forth.

The usual view, however, is that none of this matters to the believability of a particular claim

produced by science, *if that claim is adequately supported by the factual evidence.* Kepler may have become interested in planetary motion as a result of his religious and occult preoccupations, and for all I know, he may have been strongly invested in getting a certain outcome. But so long as his eventual claim that the planets move in elliptical orbits could be justified by the evidence he presented for it, it does not matter how he came to be interested in the question, nor what prior investment he may have had. The view is now there, with a claim on our attention, and the only way to reject it is to refute the evidence adduced in its favor. It is irrelevant that Kepler would not have engaged in his research had it not been for preoccupations that we do not share or that he may have had extra-evidential motives for hoping for a certain outcome.

To put this point another way, we commonly distinguish between what philosophers of science call the "context of discovery" and what they call the "context of justification." And while it's plausible that social values play a role in the context of discovery, it's not plausible that they play a role in the context of justification. Social constructionists about knowledge deny this; for them it is naïve to suppose that while social values may enter into the one context, they need not enter into the other.

Well, how could social values enter into the context of justification? There are *four* distinct ways of articulating the thought a constructionist may have in mind here; while all four may be found in the literature, they are not always sufficiently distinguished from one other.

To begin with, a constructionist may hold that it is not the factual evidence that does the justifying, but precisely the background social values. And while it may seem incredible that anyone could have seriously thought anything like this, but there are certainly assertions out there that seem to demand just such a reading. . . . However, anyone who really thought that, say, Maxwell's Equations could be *justified* by appeal to Maxwell's, or anyone else's, social or political beliefs would betray a complete incomprehension of the notion of justification. An item of information justifies a given belief by raising the likelihood that it is true. Admittedly, this is not an unproblematic notion. But unless we are to throw it out altogether, it is perfectly clear that one cannot hope to justify the fundamental laws of electromagnetism by appeal to one's political

convictions or career interests or anything else of a similar ilk.

If one were absolutely determined to pursue something along these lines, a *slightly* better avenue, and the second of our four options, would be to argue that, although social values do not justify our beliefs, we are not actually moved to belief by things that justify; we are only moved by our social interests.

This view, which is practically orthodoxy among practitioners of what has come to be known as "science studies," has the advantage of not saying something absurd about justification; but it is scarcely any more plausible. On the most charitable reading, it stems from an innocent confusion about what is required by the enterprise of treating scientific knowledge sociologically. . . .

. . . Absent an argument for being skeptical about the very idea of a good reason for a belief—and how could there be such an argument that did not immediately undermine itself?—one of the possible causes for my believing what I do is that I have good evidence for it. Any explanatory framework that insisted on treating not only true and false beliefs symmetrically, but justified and unjustified ones as well, would owe us an explanation for why evidence for belief is being excluded as one of its potential causes. And it would have to do so without undermining its own standing as a view that is being put forward because justified.

This is not, of course, to say that scientific belief must *always* be explained in terms of the compelling evidence assembled for it; the history of science is replete with examples of views—phrenology, for example—for which there never was any good evidence. It is simply to insist that scientific belief is *sometimes* to be explained in terms of compelling evidence and that the history and sociology of science, properly conceived, need have no stake in denying that.

This brings us to a third, milder conception of how social values might be indispensable for the justification of scientific belief. On this view, although evidence can enter into the explanation for why a particular view is believed, it can never be enough to explain it. Any evidence we might possess always *underdetermines* the specific belief that we arrive at on its basis. Something else must close the gap between what we have evidence for and what we actually believe, and that something else is provided by the thinker's background values and interests.

This idea, that the evidence in science always underdetermines the theories that we believe on its basis, has exerted considerable influence in the philosophy of science, even in non-constructionist circles. In its modern form, it originated in the thought of the turn of the century French physicist and philosopher, Pierre Duhem. . . .

Duhem argued that reason alone could never decide which revisions are called for and, hence, that belief revision in science could not be a purely rational matter: something else had to be at work as well. What the social constructionist adds is that this extra element is something social.

This is a clever argument that does not long conceal its difficulties. Is it really true that we could never have more reason to revise one of our theories rather than another in response to recalcitrant experience? Consider Duhem's example of an astronomer peering through his telescope at the heavens and being surprised at what he finds there, perhaps a hitherto undetected star in a galaxy he has been charting. Upon this discovery, according to Duhem, the astronomer may revise his theory of the heavens or he may revise his theory of how the telescope works. And rational principles of belief fixation do not tell him which to do.

The idea, however, that in peering at the heavens through a telescope we are testing our theory of the telescope *just as much* as we are testing our astronomical views is absurd. The theory of the telescope has been established by numerous terrestrial experiments and fits in with an enormous number of other things that we know about lenses, light and mirrors. It is simply not plausible that, in coming across an unexpected observation of the heavens, a rational response might be to revise what we know about telescopes! The point is not that we might *never* have occasion to revise our theory of telescopes; one can certainly imagine circumstances under which that is precisely what would be called for. The point is that not *every* circumstance in which something about telescopes is presupposed is a circumstance in which our theory of telescopes is being tested, and so the conclusion that rational considerations alone cannot decide how to respond to recalcitrant experience is blocked.

Perhaps, however—to come to the fourth and final way in which belief and social values might be intertwined—the correct thought is not that the social must be brought in to fill a *gap* left by the rational, but simply that the rational itself is

constitutively social. A good reason for believing something, according to this line of thought, only has that status relative to variable social factors—a sharp separation between the rational and the social is illusory.

This is currently perhaps the single most influential construal of the relation between the rational and the social in constructionist circles. What it amounts to is a relativization of good reasons to variable social circumstance, so that the same item of information may correctly be said to justify a given belief under some social circumstances, in some cultures, but not in others. . . .

But this is an impossible construal of reasons for belief, as Plato understood some time ago (see his *Theatetus*). We cannot coherently think of ourselves as believing and asserting *anything,* if all reasons for belief and assertion are held to be inexorably tied to variable background perspective in the manner being proposed. There are many ways to show this, but perhaps the most telling is this: not even the relativist would be able to adopt such an attitude towards his own view. For, surely, the relativist does not think that a relativism about reasons is justified only relative to his own perspective? If he did, why is he recommending it to us who do not share his perspective?

When we believe something we believe it because we think there are reasons to think it is true, reasons that we think are general enough to get a grip even on people who do not share our perspective. That is why we feel entitled to recommend it to them. It's hard to imagine a way of thinking about belief and assertion that precluded the possibility of that sort of generality. . . .

### Conclusion

At its best—as in the work of de Beauvoir and Appiah—social constructionist thought exposes the contingency of those of our social practices that we had wrongly come to regard as inevitable. It does so by relying on the standard canons of good scientific reasoning. It goes astray when it aspires to become either a general metaphysics or a general theory of knowledge. As the former, it quickly degenerates into an impossible form of idealism. As the latter, it assumes its place in a long history of problematic attempts to relativize the notion of rationality. It has nothing new to add to these historically discredited views; if anything, social constructionist versions tend to be murkier and more confused than their tra-

ditional counterparts. The difficulty lies in understanding why such generalized applications of social construction have come to tempt so many.

One source of their appeal is no doubt their efficiency. If we can be said to know up front that any item of knowledge only has that status because it gets a nod from contingent social values, then any claim to knowledge can be dispatched if we happen not to share the values on which it allegedly depends. There is no need to get into the often complex details. . . .

The intuitive view is that there is a way things are that is independent of human opinion, and that we are capable of arriving at belief about how things are that is objectively reasonable, binding on anyone capable of appreciating the relevant evidence regardless of their ideological perspective. Difficult as these notions may be, it is a mistake to think that recent philosophy has disclosed any good reasons for rejecting them.

### CHECKLIST

To help you review, a checklist of the key philosophers of this chapter can be found online at www.mhhe.com/moore9e.

### KEY TERMS AND CONCEPTS

## QUESTIONS FOR DISCUSSION AND REVIEW

1.  What does philosophical analysis do? In other words, explain what *philosophical analysis is.*

2.  "Square circles are nonexistent things." "No squares are circles." Which of these two propositions is simpler philosophically, and why?

3.  What is the verifiability criterion of meaning?

4.  "The first female president of the United States is unmarried." Is this sentence true or false or neither? Explain why.

5.  What does it mean to say there are "atomic" facts?

6.  "If X might exist but we have no reason to suppose that it actually does exist, then as metaphysicians we should not concern ourselves with X." Is this true? Why or why not?

7.  Apply the principle stated in the preceding question by letting X stand for God, ghosts, and space aliens.

8.  Can you know that physical objects exist when no one is perceiving them?

9.  Explain the logical positivists' reasons for holding that all metaphysics is meaningless.

10. "At least in part, a thing is what is thought about it within the various contexts in which it is used." What does this mean?

11. The text mentions that the movie *What the Bleep Do We Know!?* incorrectly characterizes the effects of observation on quantum systems. Watch the movie and describe some examples of this mischaracterization. Is there anything else in the movie that disagrees with the text? What claims in the movie agree with the text?

## SUGGESTED FURTHER READINGS

Go online to www.mhhe.com/moore9e for a list of suggested further readings.