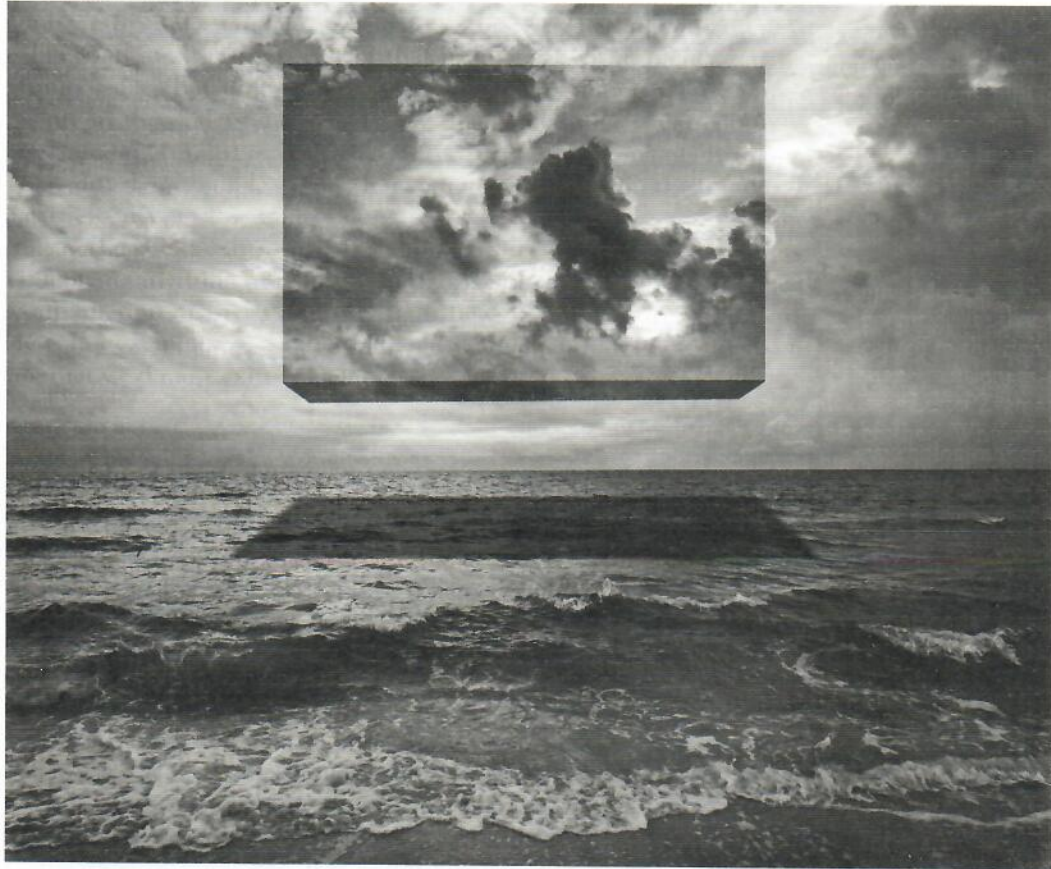


Chapter 7

The Problem of Skepticism and Knowledge



All men by nature desire knowledge.

—ARISTOTLE

What is knowledge? How does knowledge differ from belief? Does knowledge require certainty? How do we acquire knowledge? Are reason and sense experience both sources of knowledge? What is the extent of our knowledge? Do we have knowledge of the external world? These are the sorts of questions that epistemology—the branch of philosophy that studies knowledge—tries to answer.

We ordinarily claim to know many different types of things. Most of us, for example, would claim to know what pain feels like, how to ride a bicycle, and that snow is white. In each case the object of our knowledge (what our knowledge is about) is different. In the first case, it is about an experience; in the second, a skill; and in the third, a fact. Our focus here will be on the third type of knowledge because we're interested in how we come to know facts.

The sort of knowledge we have when we know what it's like to be in pain is called **knowledge by acquaintance**, or "knowing what." Bertrand Russell claimed that "we have acquaintance with anything of which we are directly aware without the intermediary of any process of inference or any knowledge of truth."¹ For Russell, the only things we are directly aware of are our sensations. Russell thought that our sensations were caused by material objects, but he didn't think that we were directly aware of them. When we hold an apple in our hand and look at it, for example, we're directly aware of a certain color, shape, smell, feel, and so on, but we're not directly aware of the apple itself. We infer the existence of the apple on the basis of our sensations. The distinction between direct and indirect awareness, however, raises one of the most difficult problems in epistemology: How do we know that our sensations are caused by physical objects? After all, we could be dreaming, hallucinating, or hooked up to a sophisticated virtual reality machine. If we can't be certain that such possibilities are not actual, can we acquire knowledge by means of our senses? Those who think not are known as **philosophical skeptics**. According to them, the extent of our knowledge is much more limited than we ordinarily assume.

Nothing in this life, after health and virtue, is more estimable than knowledge.

—LAWRENCE STERNE

The sort of knowledge we have when we know how to ride a bicycle is known as **performative knowledge**, or "knowing how." Anyone who has a skill has this sort of knowledge. Ordinarily, anyone who knows how to do something also knows what it is to do it. For example, those who know how to ride a bicycle usually know what it is to ride a bicycle because they learned how to ride a bicycle by actually riding one. But one can learn how to do something without actually doing it. One can learn how to fly an airplane, for example, by training in a flight simulator, and in the future we might be able to upload performative knowledge directly into our brains as is done in the movie *The Matrix*. So, although knowing how and knowing what are often correlated, they are not necessarily connected with each other.

The type of knowledge we have when we know that snow is white is known as **propositional knowledge**, or "knowing that." A proposition is a statement that affirms or denies something and thus is either true or false. One of the first and foremost attempts to characterize propositional

knowledge can be found in the works of Plato. In his dialogue “Meno,” Socrates remarks, “it is not, I am sure, a mere guess to say that right opinion and knowledge are different. There are few things that I should claim to know, but that at least is among them, whatever else is.”² The point that Plato is trying to make here is that while having right opinions (true beliefs) may be a necessary condition for knowledge, it is not sufficient—there must be something more to having knowledge than just having true beliefs.

True belief is necessary for knowledge because we can’t know something that’s false, and if we know something, we can’t believe that it’s false. For example, we can’t know that $2 + 2$ equals 5 because $2 + 2$ doesn’t equal 5. In other words, we can’t know what isn’t so. Similarly, if we know that $2 + 2$ equals 4, we can’t believe that it doesn’t. To know that something is true is to believe that it’s true.

True belief is not sufficient for knowledge, however, because we can have true belief without having knowledge. Consider, for example, the following situation. Suppose you believe that it’s raining in Hong Kong right now, and suppose that it is. Does this mean that you know that it’s raining in Hong Kong right now? Not if you have no good reason for believing so, for in that case, your belief is nothing more than a lucky guess. Having knowledge, then, would seem to require having good reasons for what you believe. Plato agrees. “True opinions,” Socrates tells Meno, “are a fine thing and do all sorts of good so long as they stay in their place, but they will not stay long. They run away from a man’s mind; so they are not worth much until you tether them by working out the reason. . . . Once they are tied down, they become knowledge.”³ For Plato, then, knowledge is true belief that is based on reason. Determining when a belief is adequately based on reason or justified is one of the major tasks of epistemology.

Traditionally, philosophers have recognized two sources of knowledge: reason and sense experience. Those who believe that knowledge of the external world can be gained through the use of reason are known as **rationalists**. Those who believe that sense experience is our only source of knowledge of the external world are known as **empiricists**. Empiricists recognize that reason can give us knowledge of logical truths like “Either it’s raining or it’s not raining.” But they deny that reason alone can tell us anything about the external world. Knowing that either it’s raining or it’s not raining, for example, tells us nothing about the weather.

Propositions can be known in different ways. Some propositions are knowable **a priori**—that is, prior to or independently of sense experience. For example, the proposition that either it’s raining or it’s not raining is knowable a priori because you don’t have to look outside to determine its truth. Whether it’s raining or not raining, the proposition that *either* it’s raining *or* it’s not raining is true. Other propositions are knowable only **a posteriori**—that is, on the basis of sense experience. For example, the proposition that water boils at 212 degrees Fahrenheit is knowable only a posteriori because it can be known only after observing boiling water.

knowledge by acquaintance Knowledge of what it is to have a certain experience.

philosophical skepticism The doctrine that we have no knowledge of some realms, such as the external world.

performative knowledge Knowledge of how to perform a certain activity.

propositional knowledge Knowledge of whether a proposition is true or false.

rationalism The doctrine that reason is a source of knowledge of the external world.

empiricism The doctrine that sense experience is the only source of knowledge of the external world.

a priori knowledge Knowledge that can be acquired prior to or independently of sense experience.

a posteriori knowledge Knowledge based on sense experience.

*The pleasure and delight of
knowledge far surpasseth
all other in nature.*

—FRANCIS BACON

Logical truths or propositions that can be turned into logical truths by substituting synonyms for synonyms are called **analytic propositions**. The truth that either it's raining or it's not raining is analytic because it is a logical truth. It has the form "either A or not A" and that is true no matter what proposition we substitute for A. The proposition "either there's liquid precipitation or it's not raining" is also an analytic truth because it can be turned into an analytic truth by substituting synonyms for synonyms. Propositions that are not analytic are called **synthetic propositions**. These would include most of the facts discovered by science.

Both rationalists and empiricists agree that analytic propositions are knowable a priori. They disagree, however, about whether synthetic propositions are also knowable in that way. Rationalists tend to believe that at least some synthetic propositions—such as "From nothing, nothing comes"—are knowable a priori. Empiricists, on the other hand, believe that no synthetic propositions are knowable a priori. On this issue hangs the status of reason as a source of knowledge.

In addition to understanding how we come to know things, epistemologists are also interested in understanding what it is for a proposition to be true. Ordinarily, we would say that a proposition is true when it tells it like it is. In other words, a proposition is true when things in the world are as it says they are. Aristotle expresses that insight this way: "To say of what is that it is not, or of what is not that it is, is false; while to say of what is that it is and of what is not that it is not, is true."⁴ This view of truth assumes that there is a way the world is and that a proposition is true when it corresponds to the way the world is. Thus it has come to be known as the **correspondence theory of truth**.

Explicating the notion of correspondence has been notoriously difficult, however. One suggestion, made by Ludwig Wittgenstein, is that true propositions are pictures of reality. Just as the arrangement of the elements in a picture represents the arrangement of objects in reality, Wittgenstein thought that the arrangement of the elements in a proposition represented the arrangement of objects in reality. The problem is that not every proposition can be considered a picture of reality. Consider, for example, the proposition that unicorns are not centaurs. Although this proposition is true, neither unicorns nor centaurs exist. So it's difficult to see how the elements of the proposition could picture them. Other attempts to explicate the correspondence relation have proved equally problematic. Consequently, a number of other accounts of truth have been proposed.

Some believe that truth can be defined as coherence with our beliefs. Brand Blanshard explicates the coherence theory of truth as follows:

. . . reality is a system, completely ordered and fully intelligible with which thought in its advance of more and more identifying itself. . . . And if we take this view, our notion of truth is marked out for us. Truth is the approximation of thought to reality. It is thought on its way home. . . . Hence at any given time the degree of truth in our experience as a whole is the degree of system it has

achieved. The degree of truth of a particular proposition is to be judged in the first instance by its coherence with experience as a whole, ultimately by its coherence with that further whole, all-comprehensive and fully articulated, in which thought can come to rest.⁵

According to the **coherence theory of truth**, a proposition is true if and only if it coheres with our belief system. Our belief system is not yet complete because there are aspects of reality we do not yet fully understand. So any proposition that coheres with our current belief system is at best only partially true. Only a proposition that coheres with a complete belief system—one that accounts for all aspects of reality—can be considered fully true.

Coherence with our belief system is certainly a test of truth. Fit with existing theory—conservatism—is a criterion of adequacy for hypotheses because the better a hypothesis fits with what we've already learned, the more likely it is to be true. But those who accept the coherence theory of truth maintain that coherence is more than just a test of truth: it's the nature of truth. For them, there is nothing more to a proposition's being true than its cohering with our beliefs.

There must be more to truth than coherence, however, because a proposition can cohere with one's belief system and be false. Consider the case of David Koresh, the former leader of the Branch Davidians, who died when the cult's headquarters near Waco, Texas, burned down in 1993. Koresh believed that he was Jesus Christ. He maintained that this belief was based on a coherent interpretation of the Scriptures. Suppose it was. And suppose that everything else that he believed cohered with that belief. Does that mean that it was true that he was Jesus Christ? No. Just because someone consistently believes something doesn't mean that it's true.

To avoid the problem of coherent but false belief systems, some have tried to specify which belief system a proposition must cohere with in order to be true. Charles Sanders Peirce claims that a belief is true if it coheres with the belief system fated to be agreed on by all who investigate.⁶ But there is no guarantee that all investigators will eventually agree on one belief system. For any set of data, an infinite number of theories can be constructed to account for those data. We can't rule out the possibility that, at the end of inquiry, there will be two or more incompatible belief systems that account for the data equally well. But two incompatible belief systems cannot both be true. Because it's possible for two incompatible belief systems to be equally coherent, there must be more to truth than coherence.

William James proposed that we define truth in terms of usefulness. He writes, "The true is only the expedient in the way of our behaving, expedient in almost any fashion, and expedient in the long run and on the whole course."⁷ For James, a true proposition is one that works. According to the **pragmatic theory of truth**, then, a proposition is made true by its practical consequences. One of the reasons why truth is so valuable is that actions based on true propositions are much more likely to succeed than those based

analytic proposition

A proposition that is a logical truth or can be turned into a logical truth by substituting synonyms for synonyms.

synthetic proposition

A proposition that is not analytic.

correspondence

theory of truth The doctrine that a proposition is made true by its correspondence with reality.

coherence theory of

truth The doctrine that a proposition is made true by its coherence with a system of beliefs.

pragmatic theory of

truth The doctrine that a proposition is made true by its practical consequences.

*Knowledge is the food of
the soul.*

—PLATO

on false ones. James suggests that this insight can be used to define truth. For him, a true proposition is one that is such that if we acted on it, it would bring about the desired result.

The problem, of course, is that false beliefs can lead to desired results. The Nazis desired to win World War II. If they had, would that mean that the proposition that Jews are subhuman is true? Suppose that Muslim extremists succeed in taking over the world. Would that mean that Allah is the one true God? Or take David Koresh's belief that he was Jesus Christ. That belief seemed to work for him. He got a lot of followers and a lot of wives out of it. Does that mean he really was Jesus Christ? The answer to all of these questions seems to be "No." The fact that a proposition works may provide some reason for believing that it's true, but that doesn't make it true.

Some believe that truth is simply a matter of belief. We've all heard statements like "What's true for you is not true for me" or "You have your truth, I have mine." The implication here is that truth is relative to individuals. Consequently, this view is known as **cognitive subjectivism**.

The view that you can make something true by simply believing it to be true is not unique to the twentieth century. It flourished in ancient Greece over twenty-five hundred years ago. The ancient champions of cognitive subjectivism are known as Sophists. They were professors of rhetoric who earned their living by teaching wealthy Athenians how to win friends and influence people. Because they believed that truth was relative, however, they taught their pupils to argue both sides of any case, which created quite a scandal at the time. (The words "sophistic" and "sophistical" are used to describe arguments that appear sound but are actually fallacious.) The greatest of the Sophists—Protagoras—famously expressed his subjectivism thus: "Man is the measure of all things, of existing things that they exist, and of nonexisting things that they do not exist."⁸ Truth does not exist independently of human minds but is created by our thoughts. Consequently, whatever anyone believes is true.

Plato saw clearly the implications of such a view. If whatever anyone believes is true, then everyone's belief is as true as everyone else's. And if everyone's belief is as true as everyone else's, then the belief that subjectivism is false is as true as the belief that subjectivism is true. Plato put it this way: "Protagoras, for his part, admitting as he does that everybody's opinion is true, must acknowledge the truth of his opponents' belief about his own belief, where they think he is wrong."⁹ Cognitive subjectivism, then, is self-refuting. If it's true, it's false. Any claim whose truth implies its falsehood cannot possibly be true.

It's ironic that Protagoras taught argumentation because in a Protagoran world, there shouldn't be any arguments. Arguments arise when there is some reason to believe that someone is mistaken. If believing something to be true made it true, however, no one could ever be mistaken; everyone would be infallible. It would be impossible for anyone to have a false belief because the mere fact that one believed something would make it true. So if Protagoras's customers took his philosophy seriously, he would be out of a job. If no one can lose an argument, there's no need to learn how to argue.

Some believe that truth is relative to societies or cultures. There's no doubt that different cultures have different beliefs about what is true. But according to **cognitive cultural relativism**, each culture manufactures its own truth. This view is as problematic as cognitive subjectivism, however. For if a society believed that truth was *not* socially constructed (as ours may well believe), then that view would be as true as the claim that truth is socially constructed, which is absurd.

The problem with the relativist is that he wants to have his cake and eat it too. On the one hand, he wants to say that he or his society is the supreme authority on matters of truth. But on the other hand, he wants to say that other individuals, societies, or conceptual schemes are equally authoritative. He can't have it both ways. As philosopher W. V. O. Quine explains,

Truth, says the cultural relativist, is culture-bound. But if it were, then he, within his own culture, ought to see his own culture-bound truth as absolute. He cannot proclaim cultural relativism without rising above it, and he cannot rise above it without giving it up.¹⁰

If relativism were true, there would be no standpoint outside of yourself or your society from which to make valid judgments. But if there were no such standpoint, you would have no grounds for thinking that relativism is true. In proclaiming that truth is relative, then, the relativist hoists himself on his own petard; he blows himself up, so to speak.

Much as we might like all of our beliefs to be true, we know that they aren't. Even the most fervent relativist must confess that he or she dials a wrong number, bets on a losing racehorse, or forgets a friend's birthday. These admissions reveal that truth is not simply a matter of belief. If believing something to be so made it so, the world would contain a lot fewer unfulfilled desires, unrealized ambitions, and unsuccessful projects than it does.

So what is the truth about truth? The British philosopher J. L. Austin once said, "If a proposition is true, there is, of course, a state of affairs that makes it true."¹¹ And of course there is. We can't make a proposition true by simply believing it to be true, and a proposition can't make itself true. Thus truth must consist in some sort of relationship between a proposition and reality, as the correspondence theory suggests. No one has yet specified exactly what that relationship is, but that shouldn't prevent us from accepting the correspondence theory any more than the fact that no one has been able to specify exactly what gravity is should prevent us from accepting the theory of gravity. We can provisionally adopt what might be called a **minimal correspondence theory**, which says that a proposition is true if and only if things are as it says they are. This preserves the insight that true propositions accurately represent reality without falling prey to the criticisms that were fatal to the other theories of truth.

To say that truth consists in a correspondence between a proposition and reality is not to say that there is only one way to represent reality accurately. Reality can be represented in many different ways, just as a territory can be mapped in many different ways. Consider, for example, road maps,

cognitive subjectivism

The doctrine that a proposition is made true by one's believing it to be true.

cognitive cultural

relativism The doctrine that a proposition is made true by a society's believing it to be true.

minimal correspon-

dence theory The doctrine that a proposition is true if and only if things are as it says they are.

topographical maps, and relief maps. These maps use different symbols to represent different aspects of the terrain, and the symbols that appear on one map may not appear on another. Nevertheless, it makes no sense to say that one of these maps is the correct map. Each can provide an accurate representation of the territory, and thus each can be considered to be true. The view that there is only one correct way of representing the world may be called “absolutism.” Accepting the correspondence theory of truth does not commit one to absolutism.

In this chapter, we’ll touch on just a few of the problems of epistemology. The first section deals with the problem of skepticism, the second with the problem of perception, and the third with the problem of defining knowledge.

Objectives

After reading this chapter, you should be able to

- state Descartes’ dream argument and his evil genius argument.
- evaluate the claim that knowledge requires certainty.
- state the different theories of perception.
- evaluate the different theories of perception.
- state the various theories of knowledge.
- evaluate the arguments for each theory of knowledge.
- define knowledge by acquaintance, philosophical skepticism, performative knowledge, propositional knowledge, rationalism, empiricism, a priori proposition, a posteriori proposition, analytic proposition, synthetic proposition, correspondence theory of truth, coherence theory of truth, pragmatic theory of truth, sense data, primary qualities, and secondary qualities.

Section 7.1

Things Aren't Always What They Seem

Skepticism about Skepticism

Much of what we claim to know about the world is based on sense experience. The way things look, feel, taste, sound, and smell is generally believed to be an accurate indication of the way they are. But is this belief justified? Is sense experience a source of knowledge? Or is it only a source of opinion?

All wish to possess knowledge, but few, comparatively speaking, are willing to pay the price.

—JUVENAL

Greek Rationalism

The world that presents itself to our senses is constantly changing. Winds blow, rains fall, mountains crumble to the sea, and living things come into being, grow old, and pass away. But change is a mystery. How can something change and yet remain the same thing? If something changes, it's different, and if it's different, it's no longer the same. So it seems that nothing can remain the same through change.

The problem greatly perplexed the ancient Greeks. Heraclitus, unwilling to deny the evidence of his senses, maintained that identity over time is an illusion. The same thing cannot exist over time because "Change alone is unchanging."¹² The world, he thought, was being created anew each instant. "You cannot step into the same river twice," he proclaimed, "for the water into which you first stepped has flowed on."¹³ Heraclitus viewed the world not as a static collection of discrete objects, but as a dynamic web of interconnected processes.

Change alone is eternal, perpetual, immortal.

—ARTHUR
SCHOPENHAUER

This view was shared by the Buddha (ca. 563–ca. 483 B.C.), who walked the earth at the same time as Heraclitus. The Buddha also used the analogy of a river to illustrate the dynamic nature of our existence. "O Brahmana," he says, "it is just like a mountain river, flowing far and swift, taking everything

along with it; there is no moment, no instant, no second when it stops flowing, but it goes on flowing and continuing. So Brahmana, is human life, like a mountain river.”¹⁴ Both Heraclitus and the Buddha deny the existence of any continuing substance. Nothing remains the same over time. Everything is in a constant state of flux.

*No one can destroy this
unchanging reality.*
—BHAGAVAD GITA

Parmenides

Heraclitus’s contemporary Parmenides (born ca. 515 B.C.) found this view of the world incomprehensible. Reality must contain a continuing substance, he thought, because only that which is unchanging is real. Although Parmenides expressed his philosophy in a poem, he based it on a logical argument. Thus he is often considered to be the father of rationalism—the view that the only source of knowledge is reason. Parmenides realized that whatever involves a logical contradiction cannot exist. So, he reasoned, nonexistence (nothingness) cannot exist. But from nothing, nothing comes. So everything that exists must have always existed. And everything that exists must continue to exist because it’s just as impossible for something to become nothing as it is for nothing to become something. So according to Parmenides, nothing ever comes into being or passes away. Whatever exists has always existed and will continue to exist forever.

Furthermore, if nonexistence cannot exist, then there is no place where there is nothing. But if every place is occupied, there is no place for anything to move to. So the world must be a single, solid, eternal, and unchanging sphere in which no motion—and thus no change—is possible. Of course, the world doesn’t seem that way. The world revealed by our senses seems to be full of movement and change. All that shows, says Parmenides, is that our senses don’t put us in touch with reality. So our senses can’t be a source of knowledge.

Just as Heraclitus’s philosophy is echoed in the teachings of Buddhism, so Parmenides’ philosophy is echoed in the teachings of Hinduism. In Chapter 2, verse 16 of the epic Hindu poem *Bhagavad Gita* (Sanskrit for “song of the Lord”), we read, “That which is not shall never be; That which is, shall never cease to be. To the wise, these truths are self-evident.” The notions that change is an illusion and that everything is one are two of the central teachings of Hinduism. Instead of viewing the world as essentially material in nature, however, the Hindus view it as essentially spiritual. The only thing that truly exists (because it is unchanging) is Brahman, which is pure being, pure consciousness, and pure bliss.

According to Parmenides, what we take to be real is nothing but an illusion. The world seems to be composed of numerous objects that move and change. But logic, he claims, proves otherwise. Motion and therefore change is logically impossible, and anything that’s logically impossible can’t exist. So we can’t use our senses to discover the true nature of reality. Only through the use of reason, he thought, can we come to know the way the world really is. Since Parmenides argued that the way the world appears is very different from the way it must be, he is also often considered to be the father of the distinction between appearance and reality.

Thought Probe

Thinking about Nothing

- Parmenides believed that because nonexistence cannot exist, it cannot be thought about. Do you agree? Can you think about nothing? That is, can nothingness be the object of your thought? If so, can you describe what you're thinking about when you're thinking about nothing?

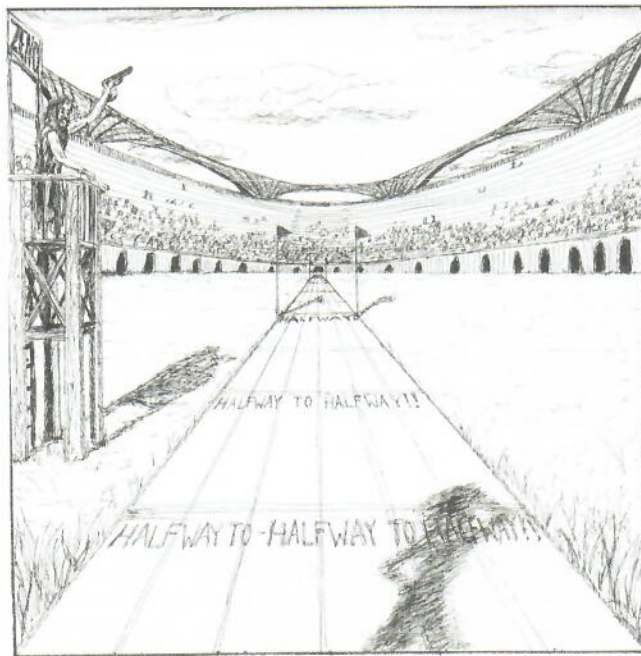
Zeno

Parmenides attracted some very able followers, most notably Zeno of Elea (490?–425? B.C.). Zeno reportedly concocted dozens of additional arguments in support of his mentor's view, only a handful of which have come down to us. To get a sense of these arguments, consider his paradox of bisection.

Thought Experiment

Zeno's Paradox of Bisection

Suppose you are in a stadium at a given distance from the exit door. Then you can never get out of the stadium because before you reach the door you must



reach the point halfway there. But before you can reach the halfway point, you must reach a point halfway to that. And since it takes some finite interval of time to move from one point to another, and there are an infinite number of halfway points, it would take you an infinite time to pass through them all and get out.¹⁵

*If we would guide by the
light of reason, we must
let our minds be bold.*

—LOUIS BRANDEIS

If Zeno's analysis of motion is correct, not only can we never get out of the stadium, but we can never take the first step toward the door. Before we reach the halfway point, we would first have to reach a point halfway to that. And before we reach that point, we would have to reach a point halfway to that, and so on. So just as it would take an infinite amount of time to get out of the stadium, it would take an infinite amount of time to take the first step. And since finite beings like ourselves do not have an infinite amount of time on our hands, motion is impossible.

Zeno did not deny that people seem to move from place to place. What he denied was that the way the world seems is an accurate reflection of the way it really is. Like his teacher, Parmenides, he claimed that whatever involves a logical contradiction can't exist. And because motion involves a logical contradiction, it can't exist.

Although Zeno's thought experiments did not convince many people of their own immobility, they had an enormous influence on subsequent philosophizing. Zeno was the first philosopher to present logical arguments in prose, a form of exposition used by philosophers ever since. In recognition of this accomplishment, Aristotle refers to Zeno as "the inventor of dialectic." Aristotle also notes that Zeno's thought experiments led to the development of the atomic theory of matter.¹⁶ Of Zeno's thought experiments, Gregory Vlastos writes, "In the whole history of philosophy no better device has ever been found for sensitizing us to the possibility that commonplaces may conceal absurdities and hence to the need of reexamining even the best entrenched and most plausible assumptions."¹⁷ We may disagree with Zeno's conclusions, but we cannot but admire his method.

The notion that the world may be very different from the way it appears has recently been explored in a number of movies, most notably *The Matrix*. The movie takes place sometime in the future when computers have taken over the world and use humans as a source of energy. The humans are kept alive in fluid-filled pods, their brains being stimulated by electrodes connected directly to their nervous systems. Those plugged into the matrix think they're leading normal lives in the late twentieth century, whereas in reality they're floating in a pod. What they take to be real is nothing more than a computer-generated fantasy.

Plato

Although the image presented in *The Matrix* is striking, it strongly resembles one presented by Plato about twenty-five hundred years ago. Plato, following Parmenides, held that only that which is unchanging is real, and, following

Solving Parmenides' and Zeno's Paradoxes

Parmenides' and Zeno's paradoxes have engaged some of the world's greatest minds for more than two thousand years, and many solutions have been offered. The best way to solve a paradox, however, is to "dissolve" it: to show that it rests on contradictory assumptions and thus cannot get off the ground. Some think that a contradiction lies at the heart of Zeno's paradoxes. In the paradox of bisection, for example, Zeno assumes that space can be infinitely divided. This means that the smallest amount of space—a point—has no dimensions. On the other hand, Zeno also assumes that it takes a finite amount of time to traverse any amount of space. But it takes no time at all to traverse a point, for a point has no dimensions. So Zeno seems to be trying to have his cake and eat it too. Both assumptions can't be true, and once we reject either one of them, there is no longer a paradox.

What about Parmenides' claim that nonexistence cannot exist? Hasn't modern science proved that the world is mostly empty space? Indeed it has. But it has also proved that space is a thing. Einstein's

theory of general relativity predicts that space will be curved around massive objects, and this prediction has been confirmed many times over in many different experiments. But you can't curve something that doesn't exist. So space is not mere nothingness. Russell Ruthen, staff writer for *Scientific American*, explains:

Space is not just the nothing between the earth and the stars. Nor is it simply the void between the electron and the atomic nucleus. It is a ubiquitous medium more resilient than rubber, more rigid than steel.¹⁸

So Parmenides was right. There is no place where there is nothing. There are places where there is nothing but empty space, but space itself is a thing. Where Parmenides went wrong was in assuming that if a place is occupied, nothing else can move into it. Empedocles realized the error in this reasoning more than two thousand years ago and suggested that we move through space like fish move through water. His view appears to be pretty accurate.

Heraclitus, that what is presented to our senses is constantly changing. So he concluded that what we sense isn't fully real. To convey this view, Plato fashioned one of the most vivid and significant images in the history of philosophy: the allegory of the cave. The allegory appears in Book VII of his *Republic*, where Socrates is talking to Glaucon:

SOCRATES: And now, I said, let me show in a figure how far our nature is enlightened or unenlightened: —Behold! human beings living in a underground cave, which has a mouth open towards the light and reaching all along the cave; here they have been from their childhood, and have their legs and necks chained so that they cannot move, and can only see before them, being prevented by the chains from turning round their heads. Above and behind them a fire is blazing at a distance, and between the fire and the prisoners there is a raised way; and you will see, if you look, a low wall built along the way, like the screen which marionette players have in front of them, over which they show the puppets.

GLAUCON: I see.

SOCRATES: And do you see, I said, men passing along the wall carrying all sorts of vessels, and statues and figures of animals made of wood and stone and various materials, which appear over the wall? Some of them are talking, others silent.

GLAUCON: You have shown me a strange image, and they are strange prisoners.

SOCRATES: Like ourselves, I replied; and they see only their own shadows, or the shadows of one another, which the fire throws on the opposite wall of the cave? . . .

SOCRATES: And suppose further that the prison had an echo which came from the other side, would they not be sure to fancy when one of the passers-by spoke that the voice which they heard came from the passing shadow?

GLAUCON: No question, he replied.

SOCRATES: To them, I said, the truth would be literally nothing but the shadows of the images.

GLAUCON: That is certain.

SOCRATES: And now look again, and see what will naturally follow if the prisoners are released and disabused of their error. At first, when any of them is liberated and compelled suddenly to stand up and turn his neck round and walk and look towards the light, he will suffer sharp pains; the glare will distress him, and he will be unable to see the realities of which in his former state he had seen the shadows; . . .

SOCRATES: And suppose once more, that he is reluctantly dragged up a steep and rugged ascent, and held fast until he's forced into the presence of the sun himself, is he not likely to be pained and irritated? When he approaches the light his eyes will be dazzled, and he will not be able to see anything at all of what are now called realities.

GLAUCON: Not all in a moment, he said.

SOCRATES: He will require to grow accustomed to the sight of the upper world. And first he will see the shadows best, next the reflections of men and other objects in the water, and then the objects themselves; then he will gaze upon the light of the moon and the stars and the spangled heaven; and he will see the sky and the stars by night better than the sun or the light of the sun by day?

GLAUCON: Certainly.

SOCRATES: Last of all he will be able to see the sun, and not mere reflections of him in the water, but he will see him in his own proper place, and not in another; and he will contemplate him as he is. . . .

SOCRATES: Imagine once more, I said, such a one coming suddenly out of the sun to be replaced in his old situation; would he not be certain to have his eyes full of darkness?

GLAUCON: To be sure, he said.

SOCRATES: And if there were a contest, and he had to compete in measuring the shadows with the prisoners who had never moved out of the cave, while his sight was still weak, and before his eyes had become steady (and the time which would be needed to acquire this new habit of sight might



PLATO'S ALLEGORY OF THE CAVE. The model of a horse being held up in front of the fire represents the truly real objects—the forms. The shadow it casts on the wall of the cave represents what the prisoners of the cave take to be real. For them, the truth is literally nothing but shadows.

be very considerable) would he not be ridiculous? Men would say of him that up he went and down he came without his eyes; and that it was better not even to think of ascending; and if any one tried to loose another and lead him up to the light, let them only catch the offender, and they would put him to death.

GLAUCON: No question, he said.

SOCRATES: This entire allegory, I said, you may now append, dear Glaucon, to the previous argument; the prison-house is the world of sight, the light of the fire is the sun, and you will not misapprehend me if you interpret the journey upwards to be the ascent of the soul into the intellectual world according to my poor belief, which, at your desire, I have expressed whether rightly or wrongly God knows. But, whether true or false, my opinion is that in the world of knowledge the idea of good appears last of all, and is seen only with an effort; and, when seen, is also inferred to be the universal author of all things beautiful and right, parent of light and of the lord of light in this visible world, and the immediate source of reason and truth in the intellectual; and that this is the power upon which he who would act rationally, either in public or private life must have his eye fixed.¹⁹

The allegory of the cave is meant to represent not only the human situation in general but Socrates' life in particular. Socrates, like the prisoner loosed from the cave, had glimpsed the true nature of reality and tried to convince the inhabitants of Athens that they didn't know what they thought they knew. Some didn't welcome this news, however, and conspired to put him to death.

The objects that cast shadows on the wall represent what Plato considers to be the truly real objects: the forms. A form is a universal; it is a property that can be possessed by many different things. Various works of art, for example, can be beautiful. What makes them beautiful, Plato claims, is that they participate in the form of beauty. As he puts it, "By beauty all beautiful things become beautiful."²⁰ So, for Plato, forms are causes: they make the world what it is. To understand the world, then, we must understand the forms that give rise to it.

We can't acquire knowledge of the forms by means of the senses, however, because the forms aren't physical objects. How, then, do we acquire knowledge of them? Plato suggests that we come to know them through an act of recollection.

The first step to knowledge is to know that we are ignorant.

—RICHARD CECIL

We often judge things to fall short of an ideal. An action may be just but not perfectly just; two objects may be equal but not perfectly equal; a painting may be beautiful but not perfectly beautiful. To make such judgments, Plato claimed, we must have knowledge of the ideal (the form) involved. But we can't acquire that knowledge through our senses because nothing that we sense is perfectly just, equal, or beautiful. So we must have been born with a knowledge of these forms, and sense experience helps us recall that knowledge.

Knowledge we are born with is known as "innate knowledge." Rationalists characteristically attribute innate knowledge to us, thus explaining how it's possible to have knowledge that does not depend on sense experience. Some rationalists claim that we have an innate knowledge of concepts; others claim that we have an innate knowledge of statements. But in either case, it's knowledge possessed by all normal human beings.

Thought Probe

Innate Knowledge

- Do you think that there are any concepts or truths that all normal humans have or know? If so, what are they?

Cartesian Skepticism

The most influential modern rationalist is Descartes. He doubted that sense experience can give us knowledge because knowledge requires certainty and nothing we learn through our senses is certain. Descartes holds that you are justified in believing something to be true only if you are certain of it. "I ought no less carefully to withhold my assent from matters which are not entirely

certain and indubitable,” he informs us, “than from those which appear to me manifestly to be false.”²¹ You are no more justified in believing something that is uncertain than you are in believing something that is obviously false. So if something can be doubted—if there is a possibility that it’s false—you can’t know that it’s true.

Although this conception of knowledge may seem unduly strict, it does seem to accord with our use of the term. We often discount others’ testimony if there is a possibility that they’re mistaken. Suppose, for example, that a witness in a murder trial claims to have seen the defendant at the scene of the crime. If the defense attorney can show that there is reason to doubt the witness’s testimony (because it was dark, because he was too far away, because his glasses were broken), she undercuts his claim to know that he saw the defendant. When there’s reason to doubt a witness, you can’t know that the person is telling the truth.

One of Descartes’ goals in his *Meditations on First Philosophy* was to determine the extent of our knowledge. To accomplish this goal, he did not try to inspect every one of his beliefs. Instead, he examined the principles upon which they are based. He realized that if the principles are dubious, then so are the beliefs that are based on them. One principle that underlies many of our beliefs is that sense experience is a source of knowledge. But our senses can deceive us. What appears to be round, for example, can turn out to be square. Because we can’t be certain that what we’ve learned through our senses is true, sense experience cannot be a source of knowledge.

Cartesian Doubt

To show that we can’t trust our senses, Descartes presents two of the most famous thought experiments in the history of philosophy: the dream argument and the evil genius argument. We examined them briefly in Chapter 2. Now let’s examine them more closely.

Here’s Descartes’ dream argument:

Thought Experiment

Descartes’ Dream Argument

How often has it happened to me that in the night I dreamt that I found myself in this particular place, that I was dressed and seated near the fire, whilst in reality I was lying undressed in bed! At this moment it does indeed seem to me that it is with eyes awake that I am looking at this paper, that this head which I move is not asleep, that it is deliberately and of set purpose that I extend my hand and perceive it; what happens in sleep does not appear so clear and distinct as does all this. But in thinking over this I remind myself that on many occasions I have in sleep been deceived by similar illusions, and in dwelling carefully on this reflection I see so manifestly that there are no certain indications by which we may clearly distinguish wakefulness from sleep that I am lost in astonishment. And my astonishment is such that it is almost capable of persuading me that I now dream.²²

*Doubt is the vestibule
which all must pass be-
fore they can enter the
temple of wisdom.*

—CALEB C. COLTON

*Where doubt is, there
truth is—it is her
shadow.*

—G. BAILEY

Dreams can often seem quite real. Even when we do things that we can't do when we're awake (like flying), it seems as if we're really doing them. Because there is no way to tell for certain while we're dreaming that we're dreaming, we can't be certain that we're not dreaming right now. And if we can't be certain that we're not dreaming right now, we can't acquire knowledge through the use of our senses.

Thought Probe

Dreams and Reality

Is Descartes right that there are no certain indications by which we can distinguish wakefulness from sleep? Suppose that every dream you had ended by your getting into bed and going to sleep. Would you be able to tell what was a dream and what was reality? How?

Descartes' dream argument can be spelled out this way:

1. We can't be certain that we're not dreaming.
2. If we can't be certain that we're not dreaming, we can't be certain that what we sense is real.
3. If we can't be certain that what we sense is real, we can't acquire knowledge through sense experience.
4. Therefore, we can't acquire knowledge through sense experience.

In contemplation, if a man begins with certainties he shall end in doubts; but if he be content to begin with doubts, he shall end in certainties.

—FRANCIS BACON

Although Descartes was not certain that he was not dreaming, you may feel that you are certain that you're not dreaming. But feeling certain and being certain are two different things. In Descartes' view, you can be certain of something only if it's impossible for you to be mistaken. But it's not impossible for you to be mistaken that you're awake. On the contrary, you could wake up at any moment and discover that your whole life has been a dream. Because you can't rule out the possibility that you're dreaming, Descartes claims that your senses can't give you knowledge of the external world.

Even if you can't be certain that you're not dreaming, it would seem that you can still know some things. You can know, for example, that some things are colored, for if you hadn't experienced colored things, how could you know what color is? None of the things that you take to be colored may actually be colored, but there must be some colored things in the world, for otherwise you wouldn't know what color is.

But even this can be doubted. You could have learned what color is by having that knowledge directly implanted in your mind. Descartes explores this possibility in his evil genius argument.

Thought Experiment

Descartes' Evil Genius Argument

Nevertheless I have long had fixed in my mind the belief that an all-powerful God existed by whom I have been created such as I am. But how do I know^d that He has not brought it to pass that there is no earth, no heaven, no extended body, no magnitude, no place, and that nevertheless they seem to me to exist just exactly as I see them?²³

An all-powerful being could put thoughts in your mind, and he could arrange it so that everything you believe about the external world is false. Because we can't be certain that we're not in the grip of such a demon, we can't acquire knowledge through the senses.

To prove that we could be systematically deluded, we don't have to appeal to the supernatural. The evil genius could just as well be a mad scientist. Peter Unger presents a modern-day version of Descartes' evil genius argument.

Thought Experiment

Unger's Mad Scientist

This scientist uses electrodes to induce experiences and thus carries out his deceptions, concerning the existence of rocks or anything else. He first drills



holes painlessly in the variously colored skulls, or shells, of his subjects and then implants his electrodes into the appropriate parts of their brains, or protoplasm, or systems. He sends patterns of electrical impulses into them through the electrodes, which are themselves connected by wires to a laboratory console on which he plays, punching various keys and buttons in accordance with his ideas of how the whole thing works and with his deceptive designs. The scientist's delight is intense, and it is caused not so much by his exercising his scientific and intellectual gifts as by the thought that he is deceiving various subjects about all sorts of things. Part of that delight is caused, on this supposition, by his thought that he is deceiving a certain person, perhaps yourself, into falsely believing that there are rocks. He is, then, an evil scientist, and he lives in a world which is entirely bereft of rocks.²⁴

There are only two kinds of people who are really fascinating—people who know absolutely everything and people who know absolutely nothing.

—OSCAR WILDE

Because Unger's mad scientist directly controls the firing patterns of the neurons in your brain, he can give you any experience he wants. As a result, he can implant in you any number of false beliefs. Because you can't be sure that you're not at the mercy of such a scientist right now, sense experience can't be a source of knowledge.

The argument suggested by Descartes' and Unger's evil geniuses is this:

1. We can't be certain that our sense experience is not caused by an evil genius.
2. If we can't be certain that our sense experience is not caused by an evil genius, we can't be certain that what we sense is real.
3. If we can't be certain that what we sense is real, we can't acquire knowledge through sense experience.
4. Therefore, we can't acquire knowledge through sense experience.

An evil genius of the sort described by Descartes or Unger could exist. There is no contradiction involved in assuming that there is such a being. As a result, premise 1 seems to be true. And given Descartes' assumption that knowledge requires certainty, premise 2 also seems to be true. If we can't be certain that we are not deluded, we can't acquire knowledge through the use of our senses.

Cartesian Certainty

Even if there is an evil genius, Descartes believes that there is at least one thing that he knows—namely, that he exists. He writes,

... I was persuaded that there was nothing in all the world, that there was no heaven, no earth, that there were no minds, nor any bodies: was I not then likewise persuaded that I did not exist? Not at all; of a surety I myself did exist since I persuaded myself of something. But there is some deceiver or other, very powerful and very cunning, who ever employs his ingenuity in deceiving me. Then without doubt I exist also if he deceives me, and let him deceive me as much as he will, he can never cause me to be nothing so long as I think that I am something.²⁵

I am certain that there is too much certainty in the world.

—MICHAEL CRICHTON

Descartes can't doubt that he thinks because doubting is a species of thinking. Any attempt to doubt that he's thinking proves that he's thinking because to doubt is to think. But he can't think unless he exists. So he's also certain that he exists. With this truth—I think, therefore I am—as a first principle, Descartes hoped to set our knowledge of the external world on as firm a foundation as our knowledge of mathematics.

The facts that he thinks and that he exists are not the only facts he knows, however. He also knows the contents of his own mind. For example, if Descartes is hungry, he knows that he is hungry. If Descartes is in pain, he knows that he is in pain. And if Descartes seems to see a tree, then he knows that he seems to see a tree.

This last bit of knowledge is important because it can serve as a basis for our knowledge of the external world. From the fact that you seem to see a tree, it doesn't follow that there is a tree. You might be dreaming, or you might be under the influence of an evil genius. But if there were a way to rule out these counterpossibilities, then you would know that there is a tree. What's needed, then, is a principle that will bridge the gap between appearance and reality.

Descartes claims to have such a principle—the principle of clarity and distinctness—which says that whatever is clearly and distinctly perceived is true. As he puts it, “. . . as often as I so restrain my will within the limits of my knowledge that it forms no judgment except on matters which are clearly and distinctly represented to it by the understanding, I can never be deceived.”²⁶ This principle allows Descartes to deduce truths about the external world from truths about his mental states. The deductions go like this:

1. I clearly and distinctly seem to see a tree in front of me.
2. Whatever I clearly and distinctly perceive is true.
3. Therefore, there is a tree in front of me.

The principle of clarity and distinctness closes the gap between the way the world appears and the way it really is. If Descartes can prove that the principle is true, he can defeat the skeptics.

Descartes attempts to establish this principle by establishing the existence of God. He is fully aware that God did not give him an infallible mind. But he is sure that God, being all-good, would not give him a mind that could not know the truth. So if he falls into error, it must be his fault, not God's.

Whence then come my errors? They come from the sole fact that since the will is much wider in its range and compass than the understanding, I do not restrain it within the same bounds, but extend it also to things which I do not understand: and as the will is of itself indifferent to these, it easily falls into error and sin, and chooses the evil for the good, or the false for the true.²⁷

Descartes believes that God gave humans free will. Unfortunately our will sometimes usurps our understanding and jumps to unwarranted conclusions. When it does, we deceive ourselves. But if our will followed our understanding—if we believed only what was sanctioned by the principle of clarity and distinctness—we would never believe anything that was false.

What we know here is very little, but what we are ignorant of is immense.

—PIERRE-SIMON LAPLACE

Descartes' argument for the principle of clarity and distinctness, then, goes as follows:

1. God exists and is no deceiver.
2. If God exists and is no deceiver, then whatever I clearly and distinctly perceive is true.
3. Therefore, whatever I clearly and distinctly perceive is true.

The first premise of this argument is problematic, for as we have seen, Descartes' ontological argument for the existence of God is not convincing. (He offers other arguments, but they are even less convincing than his ontological argument.) But whether or not these arguments succeed, many commentators believe that Descartes' defense of the principle of clarity and distinctness suffers from a more serious defect: circularity.

A circular argument assumes what it is trying to prove. Descartes is trying to prove the principle of clarity and distinctness. He claims that the truth of this principle follows from the existence of God. But he uses this principle to prove the existence of God. So Descartes seems to be caught in a circle: he can't know that God exists and is no deceiver unless he knows that what he clearly and distinctly perceives is true. But he can't know that what he clearly and distinctly perceives is true unless he knows that God exists and is no deceiver. This problem is known as the "problem of the Cartesian circle."

Doubt is not a very agreeable state, but certainty is a ridiculous one.

—VOLTAIRE

This problem is not unique to Descartes. It faces anyone who takes a foundationalist approach to knowledge. **Foundationalism** maintains (1) that there are basic beliefs—that is, beliefs whose justification does not depend on other beliefs, and (2) that the justification of all other beliefs depends, at least in part, on the basic beliefs. Foundationalists use what are known as "epistemic principles," like the principle of clarity and distinctness, to bridge the gap between basic beliefs and all other beliefs. Critics of foundationalism claim that these principles cannot be justified in a foundationalist framework. So foundationalism is a flawed approach to knowledge.

The problem with this criticism is that epistemic principles don't have to be known in order to be used. (If they did, only epistemologists or those who had studied epistemology could know anything.) The principle of clarity and distinctness says that whatever is clearly and distinctly perceived is true. Descartes need not know this principle in order to use it. If the principle is true, then whatever Descartes clearly and distinctly perceives is true, whether or not he consciously accepts the principle. The beliefs generated by the principle can then be used to justify the principle.²⁸

The problem with Descartes' attempt to justify the principle of clarity and distinctness is not that it is circular but that it is inadequate. The conclusion of a deductive argument can be only as certain as its premises. If the premises are doubtful, then so is the conclusion. But it is doubtful that God exists. So we can't be certain that the principle of clarity and distinctness is true. And because we can't be certain that it's true, then, according to Descartes, we can't know that it's true.

Reasonable Doubt

The assumption that lies behind the first premise of both the dream argument and the evil genius argument is that knowledge requires certainty. But is that true? Does Descartes know that knowledge requires certainty? He does only if he's certain that knowledge requires certainty. But can he be certain of that? Consider these propositions: that the earth is inhabited, that cows produce milk, that water freezes at 32 degrees Fahrenheit, and so on. These are all propositions we would ordinarily claim to know, yet none of them is absolutely certain. In light of these counterexamples, can Descartes legitimately claim to know that knowledge requires certainty? It wouldn't seem so. For unless he is certain that knowledge requires certainty, he can't know that it does. And he can't be certain that knowledge requires certainty because the counterexamples cited above provide good reason for doubting that it does.

So if knowledge doesn't require certainty, what does it require? It does not require enough evidence to put the claim beyond any possibility of doubt but, rather, enough to put it beyond any reasonable doubt. There comes a point beyond which doubt, although possible, is no longer reasonable. It's possible, for example, that our minds are being controlled by aliens from outer space, but to reject the evidence of our senses on that basis would not be reasonable. To know a proposition, then, we don't have to establish it beyond a shadow of a doubt. We only have to establish it beyond a reasonable doubt. This is the standard of evidence used in courts of law to adjudicate matters of life and death. If we can stake our lives on it, we should be able to stake our knowledge on it.

The Empiricist Alternative

As we saw in Chapter 2, empiricists such as David Hume believe that only terms that stand for ideas derived from sense experience can refer to real objects. The mind at birth, they claim, is a *tabula rasa*—a blank slate—that contains only what has been inscribed on it by the senses. Concepts that represent sensations, such as hot/cold, light/dark, sweet/sour, smooth/rough, and the like, are the intellectual atoms or “simple ideas” out of which all “complex ideas” are composed. The complex idea of a tomato, for example, is composed of the simple ideas of a particular shape, size, color, texture, and so on. If a term does not stand for a simple or complex idea, it is meaningless. As Hume puts it, “When we entertain any suspicion that a philosophical term is employed without any meaning or idea (as is but too frequent) we need but enquire, from what impression is that supposed idea derived? And if it be impossible to assign any, this will serve to confirm our suspicion.”²⁹ So empiricists reject the two characteristic theses of rationalism: (1) that reason is a source of knowledge of the external world, and (2) that we have some sort of innate knowledge.

Using his theory of concept acquisition, Hume tries to show that many philosophical terms—terms that purportedly refer to something that cannot

Doubt is an incentive to truth, and patient inquiry leadeth the way.

—HOSEA BALLOU

All our knowledge has its origins in our perceptions.

—LEONARDO DA VINCI

foundationalism

The theory of knowledge that maintains (1) that there are basic beliefs and (2) that the justification of all other beliefs depends on the basic beliefs.

be sensed, like causation, liberty, and the self—are meaningless. He sums up his program this way:

When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, *Does it contain any abstract reasoning concerning quantity or number?* No. *Does it contain any experimental reasoning concerning matter of fact and existence?* No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.³⁰

Empiricism, then, leads to skepticism about the existence of anything that cannot be sensed.

Although empiricists deny that reason is a source of knowledge of the external world, they admit that it can be used to discover logical truths. For example, if we have the concept of identity, reason can tell us that A is identical to A. Such truths are knowable a priori because they can be known prior to or independently of sense experience. We don't need to gather any data or conduct any experiments to confirm them. Reason alone is sufficient to establish their truth.

Statements that are logical truths, or can be turned into logical truths by substituting synonyms for synonyms, are known as "analytic" statements. Thus the statement that all males are males is analytic because it's a logical truth. The statement that all bachelors are males is analytic because it can be turned into a logical truth by substituting "unmarried male" for "bachelor."

Nonanalytic statements are known as "synthetic" statements. The statement that all crows are black, for example, is synthetic because it is not a logical truth nor can it be turned into a logical truth by substituting synonyms for synonyms. The truth of such statements can be known only a posteriori, by means of sense experience.

For the empiricists, then, there are two types of statements—analytic and synthetic—and all analytic statements are knowable a priori whereas all synthetic statements are knowable a posteriori. As Hume puts it,

All objects of human reason or enquiry may naturally be divided into two kinds, to wit, Relations of Ideas, and Matters of Fact. Of the first kind are the sciences of Geometry, Algebra, and Arithmetic; and in short, every affirmation which is either intuitively or demonstratively certain. . . . Matters of fact, which are the second objects of human reason, are not ascertained in the same manner; nor is our evidence of their truth, however great, of a like nature with the foregoing. The contrary of every matter of fact is still possible; because it can never imply a contradiction, and is conceived by the mind with the same facility and distinctness, as if ever so conformable to reality.³¹

Synthetic truths differ from analytic ones in that they give us knowledge of the external world. Analytic truths, because they are equivalent to logical truths, don't tell us anything about the world. To be told that all bachelors are males is not to be told whether the world contains any males or any bachelors. So even if reason is the source of our knowledge of analytic truths, it isn't a source of knowledge of the external world.

General observations drawn from particulars are the jewels of knowledge, comprehending great store in a little room.

—JOHN LOCKE

The Problem of Induction

Our senses can give us knowledge about objects we can observe, and our memory can give us knowledge about objects we have observed, but we often claim to know things about objects we can't observe. For example, we often claim to know what's going on in distant parts of the world as well as what will go on in the future. How can we know these things? Hume claims that our knowledge of them is based on the relation of cause and effect:

All reasonings concerning matter of fact seem to be founded on the relation of Cause and Effect. By means of that relation alone we can go beyond the evidence of our memory and senses. If you were to ask a man, why he believes any matter of fact, which is absent; for instance, that his friend is in the country, or in France; he would give you a reason; and this reason would be some other fact; as a letter received from him, or the knowledge of his former resolutions and promises. A man finding a watch or any other machine in a desert island, would conclude that there had once been men in that island. All our reasonings concerning fact are of the same nature. And here it is constantly supposed that there is a connection between the present fact and that which is inferred from it. Were there nothing to bind them together, the inference would be entirely precarious.³²

We can have knowledge about things that are not present to our senses because objects and events in the world are bound together by the relation of cause and effect. As a result, if we know a cause, we can often predict its effect, and if we know an effect, we can often retrodict its cause.

The question, then, arises, How do we know that the same cause will always produce the same effect? We can't know it by means of reason or logic because the notion that the same effect will *not* produce the same cause is not self-contradictory. Hume explains:

That the sun will not rise tomorrow is no less intelligible a proposition, and implies no more contradiction than the affirmation, *that it will rise*. We should in vain, therefore, attempt to demonstrate its falsehood. Were it demonstratively false, it would imply a contradiction, and could never be distinctly conceived by the mind.³³

The claim that the same cause always produces the same effect, then, cannot be known a priori by the light of pure reason because it's not a logical truth. Its denial doesn't entail a contradiction, and so it must be a synthetic statement.

But it can't be known a posteriori by means of sense experience either, because any attempt to prove it in that way would assume its truth. Here's Hume again:

To say [the same cause will always produce the same effect] is experimental [based on sense experience], is begging the question. For all inferences from experience suppose, as their foundation, that the future will resemble the past, and that similar powers will be conjoined with similar sensible qualities. If there be any suspicion that the course of nature may change, and that the past may be no rule for the future, all experience becomes useless, and can give rise to no inference or conclusion. It is impossible, therefore, that any arguments from experience can prove this resemblance of the past to the future; since all these arguments are founded on the supposition of that resemblance.³⁴

The empiricist thinks he believes only what he sees, but he is much better at believing than at seeing.

—GEORGE SANTAYANA

All inductive arguments assume that like causes produce like effects (that the future will resemble the past). As a result, we can't use induction to prove that claim because in that case, we would be arguing in a circle—we would be assuming what we are trying to prove—and such an argument proves nothing.

The problem, then, is this: Much of what we claim to know about the external world is based on inductive arguments from experience—inferences like: Every day in the past, the sun has risen. Therefore, the sun will rise tomorrow. But those arguments are based on the claim that the future will resemble the past, and that claim can be justified neither a priori by the light of pure reason nor a posteriori by sense experience. So it looks as if we can't know as much as we thought we did.

Science is often considered to be our best source of knowledge about the external world. Knowledge, however, requires justification. We can legitimately claim to know something only if we're justified in believing it to be true. But it looks as if we're not justified in believing what science tells us about the world because scientific inquiry is based on induction, and induction, as we've seen, is not rationally justified. There's no way to prove the assumption that underlies all inductive inferences—namely, that the future will resemble the past. So contrary to popular opinion, it seems that science can't be a source of knowledge. If you're looking for knowledge, then, you'll just have to look somewhere else.

Ironically, the view that our knowledge of the external world is based on sense experience seems to imply that we can know very little about the external world. Instead of suggesting that we give up the principle that the future will resemble the past, however, Hume suggests that we recognize it for what it is: a custom or habit that is so ingrained into us that we can't think without it.

[W]hen we assert that, after the constant conjunction of two objects—heat and flame, for instance, weight and solidity—we are determined by custom alone to expect the one from the appearance of the other. This hypothesis seems even the only one which explains the difficulty, why we draw, from a thousand instances, an inference which we are not able to draw from one instance that is, in no respect, different from them.³⁵

Recognizing that we habitually make certain inferences doesn't justify them, but it does help to explain why we make them.

Thought Probe

Science and Faith

There seems to be no way to prove the claim that like causes produce like effects (that the future will resemble the past). Yet all scientific inferences are based on that belief. Does that mean that science is based on faith? Faith, you will recall, is belief that does not rest on logical proof or material evidence. If science is based on faith, is it a type of religion? Why or why not?

The Kantian Synthesis

Immanuel Kant was scandalized by the view that we can't justify the claim that like causes produce like effects and thus that we can't have any knowledge of causes. His reading of Hume woke him from his "dogmatic slumbers" and inspired him to write some of the most influential works in the history of philosophy, including *Prolegomena to Any Future Metaphysics* and *The Critique of Pure Reason*. He agrees with Hume that the claim that like causes produce like effects is synthetic, for it's not a logical truth and its denial doesn't lead to a contradiction. But he disagrees with Hume that synthetic truths are only knowable a posteriori. On the contrary, Kant claims that we can know a priori that like causes produce like effects. He writes,

. . . the very concept of a cause so manifestly contains the concept of a necessity of connection with an effect and of the strict universality of the rule, that the concept would be altogether lost if we attempted to derive it, as Hume has done, from a repeated association of that which happens with that which precedes, and from a custom of connecting representations, a custom originating in this repeated association, and constituting therefore a merely subjective necessity.³⁶

Kant believes that we know a priori that there is a necessary connection between cause and effect—something we couldn't know if the causal relation were simply the product of custom or habit as Hume thought. So Kant rejects the empiricist claim that all synthetic statements are only knowable a posteriori. Some, he claims, are knowable a priori. So the question Kant needs to answer, then, is How are synthetic a priori truths possible?

To answer this question, Kant examines the method of inquiry used by mathematicians because, he thinks, they, too, traffic in synthetic a priori truths. He found that what makes it possible for them to discover such truths is that they study the principles the mind uses to construct mathematical objects.

The true method . . . was not to inspect what he discerned either in the figure, or in the bare concept of it, and from this, as it were, to read off its properties; but to bring out what was necessarily implied in the concepts that he had himself formed a priori, and had put into the figure in the construction by which he presented it to himself.³⁷

Mathematicians don't study physical circles or triangles because no physical objects have the properties they're interested in. No physical circle, for example, has all of its points exactly equidistant from the center, and no physical triangle has the sum of all of its interior angles exactly equal to two right angles. Instead, Kant claims, mathematicians study the principles governing concepts that they themselves have constructed.

Just as mathematical concepts are not read off from experience but read into it, so Kant thinks that certain metaphysical concepts like space, time, and causality are read into experience to make sense of it. What the senses present to the mind, in the words of William James, is a "blooming, buzzing, confusion." To make sense of this material, the mind gives it a structure by bringing it under certain concepts and placing it in certain categories.

But although all our knowledge begins with experience, it does not follow that it arises from experience.

—IMMANUEL KANT

Without these concepts, intelligible experience would not be possible. Kant explains:

The objective validity of the categories as a priori concepts rests, therefore, on the fact that, so far as the form of thought is concerned, through them alone does experience become possible. They relate of necessity and a priori to objects of experience, for the reason that only by means of them can any object whatsoever of experience be thought.³⁸

The faculty of the mind that gives us knowledge of these concepts Kant calls the “understanding.” Truths discovered by the understanding are synthetic because they are not logical truths and a priori because they apply to all possible experience. Synthetic a priori truths, then, describe those features of the world that are necessitated by our construction of it.

*Some things have to be
believed to be seen.*

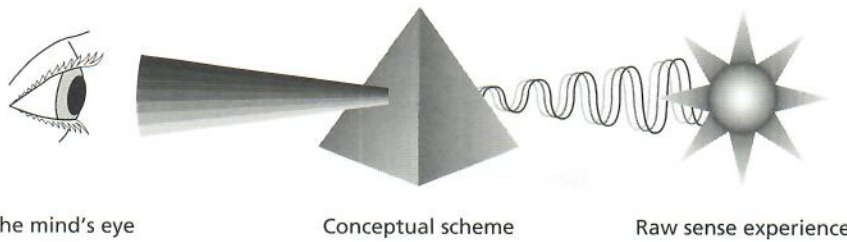
—RALPH HODGSON

Kant describes his view that the mind constructs the objects of experience as a “Copernican Revolution” in philosophy. It was previously assumed that concepts are derived from experience. But instead, Kant insists that experience is derived from concepts. So just as Copernicus was able to explain the movements of the planets by rejecting the hypothesis that the sun moved around the earth and replacing it with the hypothesis that the earth moved around the sun, so Kant thinks he is able to explain the possibility of synthetic a priori truths by rejecting the hypothesis that concepts are derived from experience and replacing it with the hypothesis that experience is derived from concepts.

Kant’s theory of knowledge saves empiricism from skepticism by wedding it to rationalism. Empiricism holds that only concepts derived from experience have objective reality. But if this were the case, then concepts like space, time, and causality would not have objective reality because they are not derived from experience. Kant maintains, on the contrary, that these concepts, which are innate, do have objective reality because they make the experience of objects possible. We know that all objects we will experience will have a location in space and time as well as a cause, because if they didn’t, we wouldn’t recognize them as objects. Falling under the concepts of space, time, and causality, then, is a necessary condition of objective experience.

Kant is a precursor of present-day cognitive psychologists because he understands the mind on the model of an information-processing mechanism. Empiricists conceive of the mind as a passive receiver of information. Kant conceives of the mind as an active processor of it. According to Kant, all perception involves conceptualization. We can’t perceive something until we’ve brought it under the concepts of space, time, causality, and so on. But this view, too, seems to lead to a sort of skepticism. According to Kant, we are not directly aware of anything in the world. Everything we experience has been filtered through our conceptual scheme, which functions like a prism, taking the undifferentiated white light of experience and organizing it into identifiable objects (colors). So we know the world not as it is in itself, but only as our conceptual scheme presents it to us.

Kant dubs the world as it is in itself the “noumena,” and our experience of it, the “phenomena.” We can never tell whether the phenomena accurately reflects the noumena because we can’t get outside of our conceptual scheme and compare it with reality. We can never take off the conceptual spectacles



CONCEPTUALIZATION.
According to Kant, all perception involves conceptualization.

through which we view the world. Consequently, we can never know the world as it is in itself.

Some object to Kant's view on the grounds that it leads to a sort of relativism. Kant thought that every human being had to employ the categories he identified in order to have objective experience. But research by linguists, anthropologists, and social psychologists suggests that people in non-Western cultures categorize their experience differently than we do. It is still a matter of debate whether the differences are significant enough to justify the claim that they have different conceptual schemes, but in any event, it seems that Kant's goal of trying to prove that all human beings must use one particular conceptual scheme is doomed to failure. We can't establish the unique applicability of a conceptual scheme by comparing it to other conceptual schemes because any comparison requires standards, and any such standards would themselves be a part of a conceptual scheme. So there seems to be no non-question-begging way of establishing one conceptual scheme as the "correct" one.

Some conclude from this that truth is relative—that there is no one way the world is because people with different conceptual schemes live in different worlds. But such a conclusion is unwarranted because, from the fact that people represent the world to themselves in different ways, it doesn't follow that they live in different worlds.

Conceptual schemes can be viewed as maps. A territory can be mapped in many different ways, and each map, provided that it is an accurate one, can be considered true. Each science, for example, can be considered as a different map of reality. The map provided by biology may contain few of the concepts contained in the map provided by physics, just as a topographical map may contain very few of the symbols contained in a road map. But biology and physics can be maps of the same reality, just as a topographical map and a road map can be maps of the same territory, and both can be considered true. Whether you consult a biologist or a physicist will depend on what you want to do, just as whether you consult a topographical map or a road map will depend on where you want to go. Different conceptual schemes, like different maps, are good for different things. So saying there is no one correct conceptual scheme no more relativizes truth than saying there is no one correct map. What we must not forget is that, as mathematician Alfred Korzybski famously noted, "the map is not the territory."³⁹ People using different maps are not necessarily traversing different territories. Similarly, people using different conceptual schemes are not necessarily living in different worlds. The world is what it is and is not affected by our representations of it.

Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passions, they cannot alter the state of facts and evidence.

—JOHN QUINCY ADAMS

Constructing Reality

Are scientific laws invented or discovered? The traditional view is that scientific laws exist “out there” in the world and that the job of the scientist is to discover them. Kant, however, claims that “the order and regularity of the appearance we entitle nature, we ourselves introduce.”⁴⁰ For him, reality is a human construct. Which view do you think is correct? Why?

Mysticism is just tomorrow's science dreamed today.

—MARSHALL McLuhan

Mystical Experience

Recognizing that we ordinarily experience reality not directly but only as it is filtered through our conceptual scheme, some have sought a direct experience of reality by transcending our conceptual scheme. They believe that our conceptual scheme functions like a veil, hiding from us the true nature of reality. By lifting the veil we can experience reality as it is in itself and thus come to know its true nature. Such direct experiences of reality are known as mystical experiences, and many who've had them claim that they are truer than any other experiences they've had.

Are the mystics correct? Is mystical experience the royal road to the truth? The only way to tell is by putting their claims to the test. One way to test the truth of someone's claim is to see how well it agrees with the claims of others. Unfortunately mystics don't agree about the true nature of reality. Christian mystics, for example, describe their experience as an intimate relationship with a personal god, whereas Buddhist mystics describe their experience as an awareness of emptiness. According to theologian Steven Katz, “There is no intelligible way that anyone can legitimately argue that a ‘no self’ experience of empty calm is the same experience as the experience of [an] intense, loving, intimate relationship between two substantial selves, one of whom is conceived of as the personal God of Western religion and all that this entails.”⁴¹ Given the diversity of their descriptions of their experiences, it's doubtful that mystics are having the same experience or experiencing the same thing.

But even if all mystics did have the same experience, that wouldn't prove that their experiences are a source of knowledge. For we've all shared with others what seems to be the same perceptual experience, then discovered that the experience “wasn't real.” Lots of people, for example, have reported identical perceptual illusions, like mirages in the desert. But this agreement among the experiences doesn't prove that the oasis in the distance is real. Experiences can be common, but false.

To preserve the view that all mystical experience yields knowledge, it has been claimed that although there are many different descriptions of mystical experience, the experience itself is nevertheless the same for everyone. The different descriptions arise from the fact that mystical experience transcends our ordinary linguistic categories. It is so unlike any other experience we've had that we lack the words to describe it. Thus mystical experience is said to be ineffable.

According to philosopher Walter Stace, to say that something is ineffable is to say that nothing can truthfully be predicated on it. Thus, for example, to say that God is ineffable is to say that “any statement of the form ‘God is x’ [where ‘x’ is a predicate] is false.”⁴² If mystical experience is ineffable in this sense, however, nothing can truthfully be said about it. In particular, it can’t truthfully be said that mystical experience is a source of knowledge because to say that is to predicate something of it and any such predication is false. Someone convinced of the ineffability of mystical experience, then, would do well to follow the advice of philosopher Ludwig Wittgenstein: “Whereof one cannot speak, thereof one must be silent.”⁴³ Second, if no description of mystical experience is true, there can be no grounds for believing that it’s the same for everyone. Our only access to others’ experience is through their descriptions of it. If these descriptions can’t be trusted, we have no way of knowing whether their experiences are similar, for totally indescribable experiences can’t be compared.

Many Eastern mystical traditions teach that the way to achieve a mystical experience is to silence our minds. Only by emptying our minds of all thoughts can we open the door to true perception. In the words of mystic Sri Aurobindo, “The cup [has to be] left clean and empty for the divine liquor to be poured into it.”⁴⁴ In a mystical state of consciousness, then, the mind is not directed upon anything. With no objects to limit awareness, it may seem as if consciousness has expanded to infinity; as if all there is is consciousness; as if everything is one. But if that is what is going on in mystical experience—if mystical experience is simply consciousness without an object—then it can’t give us knowledge of reality because in that case, it would not put us in contact with it. As philosopher Robert Nozick notes, “It would be a mistake to think there is an unusual reality being encountered, when that merely is what it feels like when the experience-mechanism is turned on yet nothing is present to be experienced.”⁴⁵ An empty mind may not be the best tool for acquiring knowledge.

A mystical experience can transform your life. It can infuse it with meaning, significance, and value. Where once you only saw pointless posturing you may now see profound purpose. Some take the profound effect that mystical experiences have on people as evidence for the reality of what’s experienced. But as Bertrand Russell replied to Father Copleston when he made such a claim, “The fact that a belief has a good moral effect upon a man is no evidence whatsoever in favor of its truth.”⁴⁶ Russell explains: “Obviously the character of a young man may be—and often is—immensely affected for good by reading about some great man in history, and it may happen that the great man is a myth and doesn’t exist, but the boy is just as much affected for good as if he did.”⁴⁷ Similarly, dreams may profoundly affect one’s life for the better. (Scrooge comes to mind here.) Because changes in character can be brought about by false beliefs as well as true, such changes provide no evidence for the truth of their incipient beliefs.

Even though an experience’s being mystical doesn’t guarantee its truth, it doesn’t guarantee its falsity either. It’s entirely possible that mystical experiences do reveal aspects of reality that are normally hidden to us. But the only way we can tell is by putting them to the test. If they are revelatory of reality,

Mystical explanations are thought to be deep; the truth is that they are not even shallow.

—FRIEDRICH NIETZSCHE

we should be able to corroborate them. The Dalai Lama, spiritual leader of Tibetan Buddhism, agrees. At a conference on neuroscience held at Newport Beach, California, he remarked, "If there's good, strong evidence from science that such and such is the case and this is contrary to Buddhism, then we will change."⁴⁸ Truth, as the Dalai Lama realizes, should be able to withstand the closest scrutiny, for only that which can withstand such scrutiny deserves to be called true.

Summary

Parmenides and Zeno argue that we cannot acquire knowledge by means of our senses because we know the world is different from the way it appears. Everything seems to be constantly changing, but change is impossible. So our senses must not put us in touch with reality. Plato, too, thinks that what we sense is not fully real. The only real objects are ideas or forms, because they are unchanging and the ultimate cause of everything.

Descartes held that knowledge requires certainty. But if this is so, we know very little that is derived from our senses. Descartes presents two powerful arguments that purport to show that our senses cannot give us knowledge of the external world. His dream argument asserts that we cannot have knowledge because, for all we know, we may be dreaming right now. His evil genius argument says that we cannot have knowledge because, for all we know, our experiences may be caused by an evil genius.

Descartes believes, however, that he can know at least two things: that he thinks and that he exists. He can't doubt that he thinks because the very act of doubting is thinking. He can't doubt that he exists because existence is a necessary condition of thinking. Beyond these two propositions, Descartes believes that we can also know (be certain of) propositions about the way things seem. We can know that we seem to have certain sensations, though we could be mistaken about their cause. What's more, Descartes thinks that we have a principle that guarantees that many of our sensations accurately reflect reality. It's the principle of clarity and distinctness: whatever is clearly and distinctly perceived is true. If this principle is true, Descartes can defeat the skeptic.

Descartes tries to establish the principle's truth by bringing in God. God exists and is no deceiver, Descartes says, and if this is so, then whatever we clearly and distinctly perceive is true. But Descartes' attempt to establish the principle is inadequate. It is not certain that God exists. So it is not certain that the principle of clarity and distinctness is true. Consequently, Descartes' bid to defeat the skeptic fails.

Skeptical doubts arise from the notion that knowledge requires certainty, as Descartes insists. But does it? We seem to know many things that aren't certain. This casts considerable doubt on Descartes' claim. We do seem to know things—but without certainty. But if knowledge doesn't require certainty, what does it require? It requires not that a proposition be beyond any possible doubt but that it be beyond any reasonable doubt.

Because empiricists believe that sense experience is our only source of knowledge of the external world, they believe that no synthetic propositions are knowable a priori. But the principle that underlies inductive reasoning—that like causes produce like effects—is synthetic and seemingly can't be known either a priori or a posteriori. If so, many of our beliefs about the external world are unjustified.

Kant claims that the principle that like causes produce like effects can be known a priori because it is a principle we read into experience to make sense of it. Our experience of objects must conform to that principle because it makes objective experience possible.

According to Kant, we don't experience objects directly, but only indirectly by means of our conceptual scheme. Some mystics argue that we can get a clearer view of reality if we transcend our conceptual scheme and experience the world directly. Such experience can yield knowledge, however, only if it can be corroborated.

Study Questions

1. What are the requirements for knowledge?
2. What are Parmenides' arguments for the impossibility of change?
3. What is Zeno's paradox of bisection?
4. What is Plato's allegory of the cave supposed to demonstrate?
5. What is Descartes' dream argument?
6. What is Descartes' evil genius argument?
7. How does Descartes close the gap between appearance and reality?
8. Why do empiricists believe that there are no synthetic a priori truths?
9. How does Kant explain the possibility of synthetic a priori truths?

Discussion Questions

1. The ultimate virtual reality machine would present a world so real that we couldn't tell that it was fake. Can you know that you're not plugged into an ultimate virtual reality machine right now? If not, what difference does it make?
2. Descartes assumes that we can be certain about our mental states. Is that true? Could you be mistaken about your mental states? Could you be mistaken about the fact that you're in pain, for example? If so, what does that imply for Descartes' program?
3. Can the epistemic principles that Descartes uses to prove the existence of the external also be used to prove the existence of other minds? Why or why not?
4. Can you think of something that people take for granted that they should be more skeptical of?

5. Can Descartes know that knowledge requires certainty? If not, does his program go through?
6. Can we know beyond a reasonable doubt that the external world exists? Why or why not?
7. Mystics have long maintained that ordinary perception is distorted by our conceptual scheme. To get a pure, undistorted view of reality, they try to perceive the world directly, without the use of any concepts. Is such pure perception possible? Can it serve as a source of knowledge? Kant claimed that thought without concepts is blind. Do you agree?

Internet Inquiries

1. Are you now living in the Matrix (a computer-generated virtual reality)? If you are, is there any way you could know that? To explore the implications of such questions, play the philosophy game called *Strange New World* at http://www.philosophersnet.com/games/matrix_start.htm.
2. If you feel certain of a proposition, is that an indication that it's true? What is the distinction that philosophers draw between psychological certainty and epistemic certainty? To find out more about this issue, go to <http://plato.stanford.edu/entries/certainty/#KinCer>.
3. Do people who speak different languages have different conceptual schemes and experience the world differently? This was the view of anthropologist Edward Sapir and linguist Benjamin Lee Whorf. To explore this issue, enter "linguistic relativity" into an Internet search engine.
4. Nick Bostrom, director of the Future of Humanity Institute at Oxford University, thinks that there's a good chance that we are currently living in a computer simulation. Do you agree? To examine his arguments, type "simulation argument" into an Internet search engine.