Sextus Empiricus starts his *Outlines of Skepticism* by distinguishing three kinds of people: (1) those he calls Dogmatists believe that they have discovered the truth and thus know the truth; (2) Academics believe that the truth cannot be discovered and thus known; and finally (3) Skeptics are those who suspend belief about the question of whether or not knowledge can be attained. They continue inquiry about the matter.¹

Sextus suggests that genuine skeptics suspend belief.² Academics are really Dogmatists because they defend the belief or dogma that knowledge is impossible. Nowadays, it is common to distinguish between two kinds of skeptics: Academic skeptics defend the claim that knowledge is impossible, while Pyrrhonian skeptics suspend belief on the question as well as other matters. However, Sextus may be unfair. The members of Plato’s Academy—whom he calls Academics—were not themselves committed to the dogma that knowledge cannot be attained. They argued that their opponents, the Stoics, were committed to it, because it follows from the Stoic theory of knowledge that knowledge is impossible. Their arguments for the thesis that knowledge is impossible should therefore be understood as *ad hominem* arguments, which rely on premises that their opponents accept.³

I will defend a form of Academic skepticism that denies just our knowledge about the external world—the world outside our own minds. It is also called Cartesian skepticism because it relies on the kind of skeptical hypotheses that René Descartes (lat. Renatus Cartesius) describes in *The First Meditation*.⁴ My argument for Cartesian skepticism is meant to be an *ad hominem* argument that relies on our ordinary epistemic concepts and practices and aims therefore to show that we—the dogmatists—are committed to its skeptical conclusion. However, because we also believe that the conclusion is false—that we do know—we are led to a paradox: Intuitively
plausible premises entail a conclusion that we take to be false. Though the premises and the
denial of the conclusion are all intuitively plausible, they are inconsistent and cannot therefore all
be true. I will argue that accepting the skeptical conclusion rather than denying one of the
premises is the best way of resolving this paradox.

**Cartesian Skepticism**

Cartesian skepticism denies that we can have any perceptual knowledge of the external world. In
*The First Meditation*, Descartes argued against the possibility of this sort of knowledge. Two of
his arguments relied on skeptical hypotheses describing possible situations in which we have
similar perceptual experiences as we normally have; but our beliefs about the external world,
based on those experiences, are false. Because our experiences do not rule out those possibilities
of error, they do not give us knowledge of the external world.⁵

Ever since Descartes, philosophers have tried to respond to these arguments by trying to
show either that we do have knowledge of the external world, or that the skeptical reasoning is
based on some false premise—without significant success. We still lack an uncontroversial and
widely accepted answer to Cartesian skepticism. Perhaps the reason for this is that the skep-
tical reasoning is valid and based on compelling premises. I will try to show that this is the case.

In *The First Meditation*, Descartes describes two skeptical hypotheses: (1) *the dreaming
hypothesis* describes the possibility that I am asleep and just dreaming that I am now typing this
essay; and (2) *the evil demon hypothesis* describes the possibility that I am a disembodied mind
dceived by an evil demon who produces all my experiences about the external world. I will use
the latter hypothesis. However, because many philosophers no longer believe that disembodied
minds are metaphysically possible, I will rely on a modernized version of it.⁶

Let us assume that the brain could be removed from the skull and then be electronically fed
stimuli like those we receive normally through our own senses. This brain would have similar
experiences and beliefs to ours; only these beliefs would be false. Indeed, it is quite possible that
I am myself in such a situation:
The brain-in-a-vat hypothesis: I am a brain in a vat wired to a computer that stimulates it so that I have the experiences and beliefs I have now but these beliefs are false.

If this hypothesis were true, my beliefs about the external world would be false and I would therefore lack knowledge of it. The Cartesian skeptic tries to show that, although I am not in fact in such a situation, the mere possibility that I could be shows that I have no knowledge of the external world. How does she try to show this?

The skeptical hypotheses draw attention to two possible situations in which I have the same experiences and beliefs. We may call them the good case and the bad case:

The good case: Things are the way I think they are. I have hands, for example, and it does not just appear that I have.

The bad case: I am a handless brain in a vat, and it merely appears to me that I have hands.

Because my experiences are the same in both cases, everything appears the same irrespective of the situation. It is clear that in the bad case, I do not know that I have hands, because I do not have hands. The skeptic argues that I do not know this even in the good case. To show this, she must assume something about the nature of knowledge. There are three sorts of considerations she can appeal to:

A. My evidence does not rule out the possibility that I am a handless brain (infallibilism).

B. I do not know that I am not a handless brain. If I do not know this, neither do I know that I have hands (the closure principle).

C. My evidence does not favor the hand hypothesis over the handless hypothesis (the underdetermination principle).
Recent discussion in epistemology focuses on the last two strategies. However, it is the first one that has been dominant in traditional philosophy, and I will defend it. The skeptical argument can thus be formulated as follows:

(CS1) If I know that I have hands, my evidence rules out the possibility that I am a handless brain.
(CS2) My evidence does not rule out the possibility that I am a handless brain.
(C) Therefore, I do not know that I have hands.

A similar argument can be given against any beliefs about the external world. So, it seems that we can have no knowledge about the external world. The argument is clearly logically valid: necessarily, if the premises are true, so is the conclusion. The question is whether the premises are true. They do appear to be true. They are based on epistemic principles that were widely accepted in the history of epistemology. I will call them Cartesian because something like them were accepted by Descartes and many other early modern philosophers.

**The Principles of Cartesian Epistemology**

All three skeptical strategies presuppose evidentialism and internalism.

*Evidentialism:* S knows that $p$ only if S’s evidence supports $p$.

Alternative ways of expressing the same idea is to say that S has good reasons for $p$ and that S has justification for $p$.

*Internalism:* S has the same evidence in the good case and in the bad case.

If internalism is true, evidence must consist of something that is internal to the subject or something that she can be reflectively aware of: experiences, intuitions, and beliefs or facts about
these. It does not matter exactly how we understand evidence. It is just important that S has the same evidence in both cases.

If I have the same evidence whether I am in the bad case or the good case, the evidence does not rule out the possibility that I am in the bad case, and thus does not guarantee that I am in the good case. It does not rule out the possibility that I am a handless brain. It is compatible with this possibility.

Internalism does not in itself lead to skepticism. We must also assume that knowledge requires evidence that guarantees truth and thus rules out all error-possibilities:

*Infallibilism:* S knows that $p$ only if S’s evidence guarantees the truth of $p$ (in other words, S’s evidence rules out all alternatives to $p$, i.e., the possibilities in which not-$p$).

If infallibilism is true, (CS1) is true, and if internalism is true, (CS2) is true. Together infallibilism and internalism leads to Cartesian skepticism: knowledge of the external world is impossible.

Internalism is a very popular view in contemporary epistemology. It is supported by the intuition that my beliefs are equally justified in the good case and in the bad case. Infallibilism, on the other hand, is very unpopular. Almost all philosophers reject it because it leads to skepticism. However, we should not reject infallibilism simply because it leads to skepticism. First, although fallibilism (the alternative to infallibilism) may avoid skepticism (which is far from clear), it has other problems that infallibilism avoids. Second, it may be possible to explain why people say and believe they know things about the external world, although it is in fact not the case.

### Problems with Fallibilism

In this section, I will explain four problems with fallibilism that make infallibilism much more plausible. Then I will address reasons to embrace skepticism even on the assumption that fallibilism is true.
The Madness of Fallibilism

Fallibilism says that I can know that $p$ even though my evidence does not guarantee the truth of $p$. So, if fallibilism is true, sentences of the following forms should appear quite natural and acceptable, but they do not:

I know that $p$, but $p$ may be false.

I know that $p$, but it is possible that $q$ (where $q$ entails not-$p$).

For example, it would be very odd to say “I know that it is Tuesday, but I may be wrong” or “I know that the animal in the cage is a zebra, but it is possible that it is a painted mule.” However, such sentences just express the fallibilist idea that knowledge is fallible. There should be nothing odd in such sentences, if fallibilism were true, but there is. So fallibilism is false.

Infallibilism, on the other hand, explains easily the oddness of such sentences. They are simply contradictory. This is how David Lewis makes the point:

It seems as if knowledge must be by definition infallible. If you claim that $S$ knows that $P$, and yet you grant that $S$ cannot eliminate a certain possibility in which not-$P$, it seems as if you have granted that $S$ does not after all know that $P$. To speak of fallible knowledge, or knowledge despite uneliminated possibilities of error, just sounds contradictory.\(^7\)

So, the first problem is that fallibilism is unable to explain the oddness of sentences that both attribute knowledge and concede the risk of error. It is no problem for infallibilism which entails that those sentences are contradictory.

The Gettier Problem

This is the traditional analysis of knowledge:

$S$ knows that $p$ if and only if (1) $p$ is true, (2) $S$ believes that $p$, and (3) $S$ is justified in believing that $p$. 
In 1963, Edmund Gettier published a short paper, in which he described two counterexamples to this analysis. Both presupposed the fallibilist view that a justified belief may be false. After Gettier’s original paper, similar counterexamples proliferated. They are all cases of true and justified beliefs that are intuitively not cases of knowledge. This is because they are cases in which a justified belief is true by good luck or accident. Here is one by Alvin Goldman:

*Fake barns:* Henry drives in the countryside and sees a barn. Because his sight and the lighting conditions are good, his belief that the object is a barn is justified. He has thus a true and justified belief. Assume, however, that there are barn facades around and that Henry cannot distinguish a real barn from the fake ones. In these conditions, we would not say that he knows that the object is a barn, because he was just lucky to form a true belief. He might as well have looked at a facade and formed a false belief.

Cases like this pose a problem for fallibilism. If a justified belief may be false, it is possible to imagine a situation, in which a justified belief is luckily or accidentally true. For example, assume that Henry looks at a fake barn and forms a false and justified belief that it is a barn. Now change the situation so that he looks at the only real barn around and forms a true and justified belief. This belief is true just by good luck.

The Gettier problem is avoided by infallibilism: if justification guarantees truth, it is not a matter of luck that a justified belief is true.

**The Lottery Problem**

Fallibilism can be formulated in probabilistic terms:

\[
S \text{ can know that } p \text{ even if the probability of } p \text{ given } S\text{’s evidence is lower than 1.}
\]

Probability is represented by real numbers between 0 and 1. If the probability of \( p \) is 1, \( p \) is certain: there is no chance that \( p \) is false. If the probability is less than 1, there is some chance that it is false. According to fallibilism, \( S \) can know that \( p \) even if there is a chance that \( p \) is false.

Assume that I have bought a lottery ticket. There are 100,000 tickets in the lottery, and only one ticket will win. The chance of winning is very low, 0.00001, and the chance of losing is very
high, 0.99999. Can I then know that my ticket will lose? We have a strong intuition that I cannot know any such thing. The problem is not that the degree of probability is too low. We can make the number of tickets larger, yet the intuition remains the same.11

If a fallibilist wants to deny the intuition and to claim that I can know that my ticket is a loser, she faces a serious problem. In this case, I can know on the same grounds of every losing ticket that it will lose. From this knowledge, I can then easily deduce that the one that is left is the winning ticket. But this is absurd. I cannot know before the lottery takes place which ticket will win. Otherwise, I would be a very rich man.12

According to fallibilism, a high probability given the evidence should be sufficient (given the other relevant conditions) for knowledge, but it is not. Fallibilism is therefore false.

The Threshold Problem

Even if fallibilism could solve the lottery problem, there would still be a threshold problem. If knowledge does not require certainty, then how strong must the evidence or justification be? What is the degree of justification needed for knowledge on a scale from 0 to 1? Any threshold less than 1 seems arbitrary. Why should a threshold of 0.95 be high enough when 0.94 is not? It seems that the only nonarbitrary answer is 1. Justification or evidence needed for knowledge must be conclusive. If this is the case, fallibilism is false.13

Skepticism and Ordinary Language

Fallibilism thus has many serious problems that infallibilism easily avoids. Why then has infallibilism been so unpopular in recent epistemology? The main reason is that it leads to skepticism. Many philosophers think, like David Lewis, that if they must choose between skepticism and fallibilism, they will choose fallibilism.14 In the mid-twentieth century, it was also common to appeal to ordinary language. In everyday life, we talk about knowing things all the time. Indeed, “know” is one of the ten most often used verbs in English. If skepticism were true, our positive knowledge attributions would be false. This would be very odd.
Rather than accepting skepticism, it may be more tempting to follow John L. Austin, and other ordinary language philosophers, and to take our ordinary use of “know” at face value. Then the fact that we correctly attribute knowledge to subjects, who do not satisfy the Cartesian standards of knowledge, shows that these standards are too stringent. Our ordinary standards are less demanding. Austin also pointed out that we do not normally require of a person who claims to know something that she can rule out the possibility that she is sleeping or that she is just a brain in a vat.\textsuperscript{15}

If Austin, Lewis, and other fallibilists are right, the first premise of the skeptical argument is false: To know that I have hands, I need not have evidence that rules out the possibility that I am a handless brain. It is enough that my evidence rules out the alternatives that are relevant. At least, in everyday contexts, skeptical hypotheses do not describe relevant alternatives, which need to be ruled out.

\textbf{The Closure-Based Skeptical Argument}

If fallibilism is true, the skeptical problem that is based on infallibilism is avoided. However, there are skeptical arguments that do not presuppose infallibilism. Let us assume that fallibilism is true and I can know that I have hands even though my evidence does not rule out the alternative that I am just a handless brain. It seems that I must still know in some fallible way that I am not a handless brain. How can I know that I have hands, if I do not know that I am not a handless brain? And it seems that I cannot even fallibly know this. We then get the following skeptical argument:\textsuperscript{16}

\begin{enumerate}
  \item[CP1] If I know that I have hands, I know that I am not a handless brain.
  \item[CP2] I do not know that I am not a handless brain.
  \item[C] Therefore, I do not know that I have hands.
\end{enumerate}

The first premise is based on a very plausible principle:
The closure principle: If S knows that $p$ and S knows that $p$ entails $q$, S is in a position to know that $q$.

We get the first premise from this principle together with the assumption that I know that if I have hands, I am not a handless brain. How could I not know this? Propositions that I have hands and that I am a handless brain are obviously logically inconsistent. If the former is true, the latter is false. Surely, I know this.

Also the second premise is quite plausible. Now it is not required that my evidence rules out the possibility that I am a handless brain (in a sense of its being inconsistent with this possibility). Yet, it is hard to see how I could even know fallibly that the possibility does not obtain. After all, if it did obtain and I were a handless brain, I would have the same evidence as I have now.

The intuitiveness of the second premise can be explained by appealing to the following also very plausible principle:

The underdetermination principle: If S knows that $p$ and $q$ describe incompatible possibilities, and S’s evidence does not favor $p$ over $q$, then S does not know that $p$.

I have the same evidence in the good case, in which I have hands, and in the bad case, in which I am a handless brain. So, it seems that my evidence does not favor the option that I am in the good case rather than the option that I am in the bad case. The choice between these two options is underdetermined by my evidence. So, assuming this principle, I do not know that I have hands.

The skeptical argument could be formulated just by using the underdetermination principle without appealing to the closure principle at all. There is a dispute about the best way of formulating the fallibilist skeptical argument, but we need not bother about it. It is important that fallibilism must be able to give a plausible response to both arguments, and it is far from clear that it can do this: There are wide disagreements among fallibilists about the right way of resolving either sort of skeptical paradox. It seems that all attempts to do this must give up some intuitively plausible principle.

It is not possible to discuss here in detail all fallibilist responses to Cartesian skepticism. It is enough to point out that they all have some costs in addition to the problems of fallibilism.
already mentioned. Infallibilism, in contrast, avoids all these problems. The only serious problem it does have is this: it makes our positive knowledge attributions false. What I try to do now is to show that this is not a serious cost, because it is possible to explain why we make these false knowledge attributions. If this is the case, infallibilism, even if it leads to skepticism, is overall the best attempted resolution of the Cartesian skeptical paradoxes.

**The Pragmatic Explanation of False Knowledge Attributions**

If Cartesian skepticism is true, our positive knowledge attributions concerning the external world are false. Why do we then make such attributions? The simple answer is that we believe that they are true and that we have knowledge of the external world. But how can we believe this, if we have the intuition that knowledge requires evidence that eliminates all possibilities of error? Is it not obvious that we do not have such evidence?

It is quite possible that ordinary people who have not taken epistemology courses typically believe that our evidence for external-world beliefs often rule out all chances of error and therefore guarantees their truth. Our ordinary knowledge attributions are made in a context, in which many things are taken for granted. They are made against mutually accepted presuppositions. Together with these presuppositions our evidence may very well eliminate all possibilities of error. Because people are not typically conscious of these presuppositions, they may very well think that it is the evidence alone that does all the work and guarantees truth. This is a mistake, though a natural one, because it is only together with the presuppositions that evidence rules out all possible errors.

What about we who are aware of skeptical error-possibilities? Should we stop making positive attributions of knowledge? Not at all. It is still true that, in everyday contexts, people accept presuppositions that are incompatible with these possibilities of error. So, we do not mislead them when we say that we can rule out all alternatives even though we cannot rule out the skeptical ones. These alternatives are already ruled out by the mutually accepted presuppositions. They are not open or live possibilities for us. For example, when we speak about my perceptual knowledge about my hands in an everyday context, we typically presuppose that
things are as they perceptually appear to me. This presupposition is incompatible with the possibility that I am a handless brain, which is not an open possibility in that context.

At the same time, we convey something useful to the audience, namely that my evidence rules out the open or relevant possibilities of error, the possibilities left uneliminated by our presuppositions, such as the possibility that I have stumps instead of hands. To use Paul Grice’s distinction between what is said and what is meant or implicated by uttering a sentence, when we attribute knowledge to me, we say that my evidence rules out all possibilities of error, which is false. But we mean or implicate that it rules out the relevant ones, which may be true.

The infallibilist skeptic can therefore explain our ordinary uses of the term “know” as well as the fallibilist. The fallibilist explains them by assuming that what is said and what is meant are both typically true. The infallibilist explains them by assuming that what is said is false, while what is meant is typically true. It is what is meant that is important in communication, and here the infallibilist skeptic and the fallibilist dogmatist agree: when we attribute knowledge to someone, we mean that her evidence rules out the relevant alternatives.

**The Utility of Skepticism**

If infallibilist skepticism and fallibilist dogmatism can both explain our ordinary uses of “know,” is there any practical difference between them? In the final section of his *Enquiry Concerning Human Understanding*, David Hume considers the utility of skepticism and dogmatism respectively. He notes that no good comes from excessive Pyrrhonian skepticism. Indeed, if everybody were a Pyrrhonist and nobody had beliefs, the whole human race would become extinct, because people need to act to satisfy their basic needs and action is not possible without belief. But also dogmatism has its dangers:

The greater part of mankind are naturally apt to be affirmative and dogmatical in their opinions; and while they see objects only on one side, and have no idea of any counterpoising argument, they throw themselves precipitately into the principles, to which they are inclined; nor have they any indulgence for those who entertain opposite
sentiments. To hesitate or balance perplexes their understanding, checks their passion, and suspends their action.\textsuperscript{24}

Hume thinks that what he calls academical or mitigated skepticism avoids the dangers of both Pyrrhonism and dogmatism. I think this is also true of the kind of Academic Cartesian skepticism defended here.\textsuperscript{25}

As Sextus describes them, the dogmatists are people who believe that they know the truth and have therefore no need to continue inquiry. It seems that one who believes that she knows that $p$ is inclined to reason in these ways:

A. I know that $p$. If I know that $p$, I also know that all evidence against $p$ is misleading. So, I need pay no attention to the evidence against $p$. (Misleading evidence is evidence against something that is true.)\textsuperscript{26}

B. I know that $p$. If I know that $p$, I also know that anybody who disagrees with me about the truth of $p$, is wrong. So, I need pay no attention to those who disagree with me about the truth of $p$.

C. I know that $p$. If I know that $p$, I may use $p$ as a reason for action. So, I may use $p$ as a reason for action.

All these ways of reasoning are based on plausible principles. The first two of them are based on the closure principle (discussed earlier), and the last one on the principle that knowledge is actionable. They explain the perils of dogmatism, as Hume sees them: dogmatists ignore evidence and arguments against their view, do not tolerate those who have opposite views, and are inclined to act rashly.

An Academic Cartesian skeptic avoids the opposite dangers of Pyrrhonism and dogmatism. First, she has beliefs and is able to act. Second, she believes that she does not know that $p$. So, she has not terminated the inquiry about $p$ and is sensitive to further evidence both for $p$ and against $p$, including evidence provided by other people. And, finally, she considers carefully whether her evidence for $p$ is sufficient for action. If there is practical value in these sorts of
attitudes towards one’s own beliefs, Academic Cartesian skepticism has practical value that Pyrrhonism and dogmatism fail to have.


2 There are three possible doxastic attitudes to any proposition $p$: (1) we may believe that $p$, (2) we may believe that not-$p$, or (3) we may suspend belief (or judgment) about the truth of $p$. If $p$ is <God exists>, the theist believes that God exists, the atheist believes that God does not exist, and the agnostic suspends belief about the question whether God exists. According to Sextus, the agnostic is the only skeptic here; the theist and the atheist are dogmatists.


5 Ibid., 13–15.


16 Nozick, *Philosophical Explanations*, 197–204.


24 Ibid., 161.
