1. Skepticism as an underdetermination problem

Skepticism about the external world is a philosophical problem, but there are importantly different conceptions of what that problem is. One way of understanding such skepticism, which I find fruitful, is to construe it as an underdetermination problem. Let me explain what I have in mind by way of an example. Suppose an art historian is trying to decide whether a certain painting is by Rembrandt or by one of his students. The picture is signed “Rembrandt” but the handwriting is somewhat unusual and was added some time after the work was completed. In general, the execution of the picture is typical of Rembrandt's work, but there are some noteworthy anomalies. These unusual features may be signs of another hand, but they may just as well indicate that Rembrandt didn't completely finish the painting.

The art historian is thus faced with two competing hypotheses about the origin of the work she is examining. Either it was painted (and perhaps left incomplete) by Rembrandt, or it is by one of his followers. The two hypotheses are equally successful in explaining the evidence on hand. For example, they both account for the (imperfect) stylistic affinities between the picture being examined and paintings known to be by Rembrandt. Under these circumstances, it would be arbitrary to favor one hypothesis over the other. Even a correct choice would be, at best, a lucky guess. So, the art historian doesn’t know that Rembrandt painted the picture.

What lesson about knowledge should we draw from this example? A straightforward suggestion would be the following:
Strong Underdetermination Principle: If q is a competitor to p, and both p and q are logically compatible with all the evidence available to S, then S doesn’t know p.\(^1\)

The trouble is that this principle immediately excludes the possibility of any inductive knowledge, as follows. If a hypothesis is supported by inductive evidence, the negation of the hypothesis is logically compatible with the evidence, too. The original conclusion thus has a competitor which, according to the Strong Underdetermination Principle, prevents it from counting as knowledge. But the considerations with which I began hardly seem to count against the possibility of inductive knowledge in general.

At this point a more plausible proposal would be:

Underdetermination Principle (UP): If q is a competitor to p, then one can know p only if one can non-arbitrarily reject q.

Rejection of q would be arbitrary in the relevant sense just in case q is, from an epistemic standpoint, no less worthy of belief than p.\(^2\) So, we have:

Underdetermination Principle (UP, alternate version): If q is a competitor to p, then a subject S can know p only if p has more epistemic merit (for S) than q.\(^3\)

These formulations are meant to be more adequate than the Strong Underdetermination Principle. Accordingly, I take it that the inferiority of q to p on broadly inductive grounds gives p greater epistemic merit than q, and makes the rejection of q in favor of p non-arbitrary.

Examples like the one discussed above suggest that the Underdetermination Principle so understood does constrain what we will count as knowledge. In particular, the soundness of this principle would account for the art historian’s failure to know that Rembrandt painted the picture she was examining, without eliminating the possibility of inductive knowledge altogether.\(^4\)

Certainly, there is some kind of incompatibility between underdetermination and knowledge. I think that this opposition—which we encounter in everyday life—can give rise to 2
the problem of skepticism about the external world. As we have seen, the fact that her evidence supports two rival hypotheses equally well prevents the art historian from knowing that a particular picture was painted (caused to exist) by Rembrandt. Such situations are utterly familiar. However, it can appear that none of our beliefs about the external world counts as knowledge for similar reasons. Suppose you see a tree. You take your sensory experience at that time to be caused by a tree. But if you have just as much reason to think that something else is the cause of your experience, your belief that there is a tree in front of you is arrived at arbitrarily and doesn’t amount to knowledge. Skeptical arguments, as I understand them, are meant to establish that every one of our perceptual beliefs faces competition from an equally good alternative. It would follow that we are never in a position to know anything about the world around us.

The classic source for such arguments is, of course, Descartes's First Meditation. Descartes considers the skeptical alternative that he is dreaming. He finds that he has no basis for rejecting that alternative, and he concludes that he doesn’t know he is sitting by a fire. This point, if sound, generalizes immediately. The unexcluded possibility that your sense experience is merely an extended dream would undercut all, or virtually all, your putative knowledge about the external world. I will call this line of thought the Dreaming Argument.

The Dreaming Argument rests on the observation that our sensory experiences might not be caused by anything external to us. Alternatively, our experiences could be caused by an external entity (or entities) thoroughly different from the objects we normally take to exist. Descartes raises the possibility that one's experiences are produced by an evil demon; the more up-to-date version is that one is brain-in-a-vat whose experiences are caused by a computer. I
will call this line of thought the Deceiver Argument. Again, the concern is that holding to our everyday beliefs about the world is merely arbitrary, and, hence, that we lack the knowledge we always thought we had.

Let us examine the workings of the Deceiver Argument more closely. It will be helpful to introduce some special terminology and notation. According to the skeptic, we know little or nothing about the external world. I will call those propositions the skeptic says we don’t know mundane propositions, and beliefs with such propositions as their contents, mundane beliefs.7

One's mundane beliefs are pitted against a hypothesis of massive sensory deception, like the hypothesis that one is a brain-in-a-vat. I will abbreviate the skeptical hypothesis as “SK”. The details need not concern us here. What matters now is just that, if SK were true, the world would be thoroughly different from the way we suppose, and virtually all our mundane beliefs would be false.

The Deceiver Argument can be set out as follows:

A1. For any mundane proposition m, if I know m, then my rejection of SK in favor of m is not underdetermined.

A2. My rejection of SK in favor of m is underdetermined.

A3. Therefore, I have no knowledge of any mundane propositions.

This argument is very simple in its structure, and it is obviously valid.8 The acceptability of the argument therefore turns on the interpretation and correctness of its premises. Premise (A1) invokes a condition on knowledge having to do with underdetermination, and Premise (A2) is the claim that condition isn’t met. I propose that we understand (A1) as an application of the Underdetermination Principle set out above. That principle excludes knowledge in cases where a subject has no non-arbitrary way to choose between conflicting hypotheses. The skeptic's thesis

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in (A2) is that we are in just such a position with respect to the choice between m and SK. To refute the Deceiver Argument as formulated, one has to reject either (A1) or (A2). Since (A1) follows from the Underdetermination Principle, rejecting (A1) requires one to show that the Underdetermination Principle is unsound. I will comment on that way of resisting the argument in the next section.

Now, though, let me make a remark about (A2). What counts as epistemic merit--and therefore what it takes for m and SK to differ in epistemic merit--is a substantive question. There are views according to which m would exceed SK in epistemic merit if: (i) m is appropriately supported by inductive or explanatory considerations; (ii) m is a basic belief, or the rejection of SK is a fundamental epistemic norm; or (iii) m enjoys the benefits of methodological conservatism.9 And (iv) m would certainly enjoy more epistemic merit than SK, if SK is logically incoherent.

2. The Underdetermination Principle, the Closure Principle, and All That

My presentation of the Deceiver Argument as (A1)-(A3) differs from one which many philosophers have taken as canonical. The Deceiver Argument is often analyzed as:

C1. For any mundane proposition m, if I know m, then I know that I’m not the victim of massive sensory deception.

C2. I don’t know that I’m not the victim of massive sensory deception.

C3. Therefore, I have no knowledge of any mundane propositions.

(C1) is supposed to follow from the

Closure Principle for Knowledge (CK): If S knows p and S knows that p entails q,10 then S knows q.
There remains the question of how (C2) is supposed to be motivated. One way is by appeal to the Underdetermination Principle itself, and there are others.\textsuperscript{11}

The question naturally arises whether the differences between (A1)-(A3) and (C1-C3) make one or the other a more effective argument for skepticism. Consider, in particular, the first premise of each argument. (A1) is supported by the Underdetermination Principle. (C1) is supported by the Closure Principle for Knowledge. The Underdetermination Principle, like the Closure Principle, makes knowledge of mundane propositions depend upon the epistemic status of skeptical hypotheses. The Underdetermination Principle requires, as a condition for knowledge of the world, that our rejection of skeptical hypotheses not be arbitrary, while the Closure Principle requires that we know such hypotheses to be false. The soundnesss of the Closure Principle has been vigorously disputed.\textsuperscript{12} One might think that the skeptic could avoid the difficulties facing the Closure Principle by relying on the Underdetermination Principle instead. But objections to the Closure Principle may count against the Underdetermination Principle as well. For that reason, it becomes important to see how these two principles are related.\textsuperscript{13}

In order to do that, I will need to characterize in general terms some epistemic principles and the relations among them. I will begin by introducing some notation. Abbreviate ‘S knows that...’ by ‘K(...)’. The Closure Principle for Knowledge can then be rendered as:

\begin{equation}
\text{(CK) \quad \text{If } K(p) \text{ and } (p \text{ entails } q), \text{ then } K(q).}
\end{equation}

(CK) is the thesis that a certain epistemic operator, namely ‘K’, is closed under logical implication. Analogous closure principles may be formulated for other operators.\textsuperscript{14} For example, ‘S is justified in believing that...’, abbreviated as ‘J’:
(CJ) If J(p) and (p entails q), then J(q).

Also, ‘S’s evidence supports...’\textsuperscript{15} abbreviated as ‘E’:

(CE) If E(p) and (p entails q), then E(q).\textsuperscript{16}

These principles have the general form, where O is an epistemic operator

(CO) If O(p) and (p entails q), then O(q).

Closure principles of this sort link the epistemic status of one proposition to another proposition’s having the same epistemic status, namely that specified by O(...).

Epistemic operators are also subject to another kind of principle, according to which the application of an operator O*(...) to a proposition is a necessary condition for the application of another operator to the same proposition. I will call such principles “weakening principles” and where such a principle holds between O and O*, I will say that O* is “weaker” than O. The form of such principles is:

(WOO*) If O(p), then O*(p).

Of course, specific principles of this form are of keen interest to epistemologists. One is that justification is necessary for knowledge. In the notation adopted here

(WKJ) If K(p), then J(p).

Internalists of a certain sort affirm (WKJ), externalists of a certain sort reject it.

Finally, in addition to closure principles and weakening principles, there are what I call mixed linkage principles. Such principles make the application of one epistemic operator to a proposition a necessary condition of the application of another operator to a different proposition. The first proposition bears some specified relation to the second; here, that relation will always be entailment. Mixed linkage principles have the form
(MLP) If O(p) and (p entails q), then O*(q).

Two remarks are appropriate at this point. First, a MLP can be generated by combining a closure principle with a weakening principle. If we have

(CO) If O(p) and (p entails q), then O(q)

and

(WOO*) If O(p), then O*(p),

we can apply (WOO*) to the consequent of (CO) to yield

(OO*) If O(p) and (p entails q), then O*(q).

Second, it might appear that if an operator O is closed, and O* is weaker than O, then O* is closed as well. That is,

(CO) If O(p) and (p entails q), then O(q)

and

(WOO*) If O(p), then O*(p)

might seem to imply that

(CO*) If O*(p), and (p entails q), then O*(q).

In many cases, principles related in this way will all be sound. For example, it’s widely thought that closure holds for knowledge (CK), that justification is a necessary condition for knowledge (WKJ), and that closure holds for justification as well (CJ). However, it’s not true in general that an operator which is weaker than a closed operator must itself be closed. Here is an (admittedly artificial) counterexample. I will assume (CK) is sound. Specify an operator Z(...) as follows: ‘S doesn’t falsely believe that...’. Because truth is a condition of knowledge, Z is weaker than K. Now, say that S doesn’t believe the false proposition u = ‘Howard drove home
during the blizzard’, but S does believe the false proposition \( v = \text{‘Howard drove to the doctor}
during the blizzard or Howard drove home during the blizzard’}. \( U \) entails \( v \), yet in this case \( Z(u) \) is true but \( Z(v) \) is false. So, \( (CZ) \) doesn’t hold. An upshot of this discussion is that showing that
closure fails for a weaker operator doesn’t conclusively establish that closure fails for a stronger
one.

At this point, we can turn to the Underdetermination Principle. The primary formulation
of the principle was

\[\text{Underdetermination Principle (UP): If } q \text{ is a competitor to } p, \text{ then one can know } p \text{ only if one can non-arbitrarily reject } q.\]

I assume that to reject a proposition is to accept its negation. So, if S can non-arbitrarily reject \( q \),
then S can non-arbitrarily accept \( -q \). Let me introduce ‘N(...)’ to stand for ‘S can non-arbitrarily
accept...’. The Underdetermination Principle can then be written as

\[\text{(UP) } \quad \text{If } K(p) \text{ and } (p \text{ entails } -q), \text{ then } N(-q).\]

(UP) has the form of a mixed linkage principle. As I indicated in the previous section, (UP) has
considerable intuitive appeal.

(UP) follows from (CK), on the assumption that non-arbitrary acceptance is necessary for
knowledge. In the notation I’ve adopted, that assumption can be put as

\[\text{(WKN) } \quad \text{If } K(p), \text{ then } N(p).\]

I take it that this principle holds because justification is a necessary condition for knowledge

\[\text{(WKJ) } \quad \text{If } K(p), \text{ then } J(p).\]

and non-arbitrary acceptance is a necessary condition for justification

\[\text{(WJN) } \quad \text{If } J(p), \text{ then } N(p).\]

Now, (WKN) can be applied to the consequent of
(CK)  If K(p) and (p entails q), then K(q)

to yield

(UP)  If K(p) and (p entails -q), then N(-q).

That is, assuming (WKN), (CK) entails (UP).

But, for all that has been said, (UP) might hold even though (CK) fails. In fact, (UP) can be derived without assuming (CK). Grant that non-arbitrary acceptance is necessary for knowledge

(WKN)  If K(p), then N(p).

Assume as well that closure holds for non-arbitrary acceptance,

(CN)  If N(p) and (p entails q), then N(q).17

The two principles can be combined to yield

(UP)  If K(p) and (p entails q), then N(q).

In short, (UP) can be motivated independently of (CK). So it would seem that the skeptic can deploy a version of the Deceiver Argument which relies on (UP), regardless of how things stand with versions of the Deceiver Argument that proceed from (CK).

Stewart Cohen suggests otherwise.18 He writes:

But (CK) cannot really be a weakness of (C1)-(C3) relative to (A1)-(A3)...[T]he premises of (A1)-(A3) entail both premises of (C1)-(C3). But though the premises of (C1)-(C3) entail (A1) they do not entail (A2)...(A1)-(A3) is a sound argument only if (C1)-(C3) is–but not conversely. Thus, (A1)-(A3) can be refuted without refuting (C1)-(C3), but (C1)-(C3) cannot be refuted without refuting (A1)-(A3). In this way, (C1)-(C3) is the stronger argument. (p. 153, with alterations).

I don’t see how the logical relations Cohen cites make (C1)-(C3) a “stronger argument” than (A1)-(A3). Compare (C1)-(C3) to the following “set-theoretic argument” for skepticism:
S1. For any mundane proposition m, if I know m, then I have derived -SK from the axioms of set theory.

S2. I have not derived -SK from the axioms of set theory.

S3. Therefore, I have no knowledge of any mundane propositions.

(S1)-(S3) bears the same relation to (C1)-(C3) as (C1)-(C3) bears to (A1)-(A3). First, (C1) and (C2) together imply (S1), and (C2) implies (S2). Second, (S1) and (S2) together imply (C1). Third, (C2) cannot be derived from (S1) and (S2). By Cohen’s criteria, (S1)-(S3) is “stronger” than (C1)-(C3), and “stronger” than (A1)-(A3) as well. But, of course, the “set theoretic argument” is worthless; it does less, not more, to serve the skeptic’s purposes than the other arguments. We have no reason, at this point, to regard (C1)-(C3) as superior to (A1)-(A3).

Yet it remains to be seen whether (UP) will be really be available to the skeptic if (CK) has to be given up. Consider the two most prominent attacks on (CK), those due to Robert Nozick and to Fred Dretske. Nozick introduces the notion of S’s tracking the truth of a proposition. We can capture that notion with the operator (If...were false, S would not believe...), which I will abbreviate as ‘T(...).’ Nozick argues that tracking is necessary for knowledge. That condition can be represented as

(WKT)If K(p), then T(p).

Nozick also showed that the tracking condition isn’t closed under logical implication. I argued above that it’s not generally true that if closure fails for a necessary condition of knowledge, knowledge itself isn’t closed. But it does seem that the failure of closure for (T) implies that (CK) fails as well. So if tracking is necessary for knowledge, (CK) is unavailable for use in skeptical arguments. Now, one might think that non-arbitrary acceptance could still be an additional necessary condition for knowledge, over and above the tracking requirement. (UP)
would then hold, and the skeptic could proceed despite the failure of (CK). But, as Nozick himself saw things, the tracking condition naturally has its place as a component of a non-justificationist, reliabilist account of knowledge. Such an account rejects (WKJ) and thus leaves no particular motivation to endorse (WKN), nor (UP) itself.

The other principal objection to (CK) is that it seems to be violated in situations like Dretske’s Zebra Case. In that example, you are supposed to know Z, that the animal you see at the zoo is a zebra, yet not know -CDM, that the animal at the zoo isn’t a cleverly disguised mule made to look like a zebra. Z clearly entails -CDM. So, if you do know Z, but don’t know -CDM, (CK) fails. Whether the Zebra Case has any bearing on the status of (UP) depends on why the epistemic status of Z is supposed to diverge from that of -CDM; in and of itself, the example doesn’t specify what favorable relation you have to Z that you lack with respect to -CDM. One possibility is that your belief that Z is reliable, in a way required for knowledge, but your belief about the truth of -CDM is unreliable. However, if a reliabilist account of the Zebra Case is adopted, then the status of (WKJ), and also of (UP), is again put into doubt.

Dretske offers a different analysis of why (CK) is violated in the Zebra Case. He assumes that, although you do know Z, you lack evidence against CDM. Because you lack evidence against CDM, you don’t know -CDM. Hence, (CK) fails. Now, suppose Dretske is right that you do know Z. CDM is a competitor to Z. If you have no evidence against CDM (and CDM doesn’t suffer from some other epistemic defect), then your rejection of CDM would be arbitrary. But (UP) requires that if you know Z, and CDM is a competitor to Z, your rejection of CDM has to be non-arbitrary. So, if this way of understanding of the Zebra Case is right, the
Underdetermination Principle would fail just like the Closure Principle, and for the same reason.\textsuperscript{24}

The analysis of the Zebra Case just given isn’t obviously correct; ultimately, I think, it is incorrect. The point I want to make is just that the differences between (CK) and (UP) may not be epistemologically significant. It could be that both principles are unsound, and that neither version of the Deceiver Argument goes through. Alternatively, it may be that both principles are sound, so that any difference in efficacy between the different versions of the Deceiver Argument would have to lie elsewhere. To sort this matter out requires a detailed assessment of the considerations Nozick and Dretske have advanced. My own view is that the Closure Principle withstands scrutiny and must be respected. I think that the soundness of the Underdetermination Principle depends on whether non-arbitrary acceptance is necessary for knowledge. I believe that it is, but, as noted above, the issue is very much disputed.

3. Epistemic Impairment

On the analysis of the Dreaming Argument provided above, the concern raised by the dreaming hypothesis was that we could be merely dreaming that things are a certain way, while in truth they were utterly different. Our inability to exclude the possibility of dreaming would be an inability to rule out the possibility of error on our part. To this extent, the Dreaming Argument and the Deceiver Argument do not differ. But, the possibility that one is dreaming, understood in various ways, seems to allow for the construction of skeptical arguments that significantly diverge from the pattern (A1)-(A3) I’ve been considering so far.\textsuperscript{25}

It’s natural to suppose that dreaming is, by its very nature, is incompatible with knowing. That is, your dreaming that p would prevent you from knowing p despite the truth of p, and even
despite the fact that the truth of \( p \) caused you to believe \( p \) in your dream.\(^{26} \) It’s widely thought that the possibility of being in such a state gives rise to a skeptical argument (hereafter, the “Epistemic Impairment Argument”). The point of such an argument is that we can have no knowledge of the world unless we can know that we don’t suffer the sort of epistemic deficit dreaming imposes. It need not be assumed that the dreams we undergo are unveridical.

It seems that an argument conducted on these terms has to depart from the pattern (A1)-(A3) and (C1-C3), above. In fact, it has been claimed that the failure of (A1)-(A3) and (C1)-(C3) to encompass the Epistemic Impairment Argument shows that they don’t capture what is really at stake in the philosophical consideration of skepticism.\(^{27} \) A regimented version of the Epistemic Impairment Argument would go as follows (as before, “\( m \)” stands for any proposition the skeptic says we don’t know):

\( \begin{align*}
E1. & \quad \text{If I’m dreaming } m, \text{ it’s false that I know } m. \\
E2. & \quad \text{In order to know } m, \text{ I must know the falsity of any proposition which is inconsistent with my knowing } m. \\
E3. & \quad \text{Therefore, in order to know } m, \text{ I must know that I’m not dreaming } m. \\
E4. & \quad \text{I don’t know that I’m not dreaming } m. \\
E5. & \quad \text{Therefore, I don’t know } m.
\end{align*} \)

This argument is defective, however. Consider assumption (E2). Like the Underdetermination and Closure Principles, (E2) is supposed to link knowledge of mundane propositions with knowledge that one isn’t dreaming. (E2) is in fact much stronger than the Closure Principle, which it entails.\(^{28} \) Crucially, (E2) also entails the principle that one knows a proposition only if one knows that one knows it:

(Iterativity Principle) \( Kp \rightarrow KKp. \)
The derivation is straightforward. My not knowing p is inconsistent with my knowing p. By (E2), if I know p, I must know the falsity of any proposition inconsistent with my knowing p. So, I must know the falsity of the proposition that I don’t know p. That is, I know that I know p. The point can be put less formally as follows. A failure to know that one isn’t in some knowledge-impairing condition like dreaming would deprive one of second-order knowledge. To argue that this second-order failure results in a lack of first-order knowledge about the world, one must apparently rely on a principle that makes second-order knowledge a condition of knowing simpliciter. Hence, the proponent of the Epistemic Impairment Argument seems committed to the Iterativity Principle.

The difficulty here is that the Iterativity Principle is questionable on its face. A further source of trouble is that the Iterativity Principle, when combined with certain plausible assumptions about knowledge, can lead to paradox. Thus, the skeptic seems to take on unwelcome commitments by employing an argument based on the possibility of epistemic impairment. By contrast, the Deceiver Argument in the form (A1)-(A3) yields the conclusion the skeptic desires without reliance on the Iterativity Principle. For this reason, some version of the Deceiver Argument seems to offer better support for skepticism.

Now, the point just made presupposes that the skeptic will have to effect the transition from (E1) to (E3) by way of a fully general principle about knowledge. Perhaps this isn’t so. The skeptic might make the more limited claim that perceptual knowledge in particular requires knowledge that one is in a perceptual state (rather than a dream state). For example, suppose you see a cat on a bed. The claim now is that you couldn’t know that there is a cat on a bed without knowing that you are perceiving a cat on a bed. But perceiving is different from dreaming, so it
would follow that you couldn’t know about the presence of the cat without knowing that you weren't dreaming.

This point would generalize to cover all cases of perceptual knowledge, yielding the premise:

F1. For any mundane proposition m, if I know m by perceiving m, I know that I’m not dreaming m.

(F1) replaces (E1)-(E3), allowing the Epistemic Impairment Argument to proceed without anything so strong as the Iterativity Principle in the background. The argument continues:

F2. I don’t know that I’m not dreaming m.
F3. Therefore, I don’t know any mundane proposition m by perceiving m.
F4. Therefore, I have no perceptual knowledge of the external world.

Presumably, if one has no perceptual knowledge of the external world, one would have no knowledge of the external world at all. So, from (F4), we arrive at the full skeptical conclusion:

F5. I have no knowledge of the external world at all.

What should we make of this line of thought? It’s natural to think that one couldn’t have knowledge of the external world without knowing that one wasn't dreaming, and I think that this impression should be respected. But, in my view, perceptual knowledge requires one to know that one isn’t dreaming because the nature of dream states is that they are unveridical, or at least overwhelmingly likely, to be unveridical. What gives the possibility that I’m dreaming its skeptical force is the connection between dreaming and error. It isn’t that dreaming involves any other kind of defect or epistemic impairment the skeptic may exploit.32

There are more concessive and less concessive ways to support this assessment. First, the more concessive way. Let us grant that it’s extremely likely, but not necessary, that dreams are
unveridical. And let us grant also that if I weren't justified in believing that I’m not now dreaming, I wouldn’t have any perceptual knowledge. But I would still maintain that the incompatibility between dreaming and knowledge is due to the connection between dreaming and error. More specifically, the fact that one is dreaming makes it unlikely that the seemingly perceptual beliefs one has are true. Suppose I have experiences I would normally take to be waking experiences of being in Carnegie Hall. Under ordinary circumstances, my having those experiences would make it extremely likely that I was, in fact, in Carnegie Hall. If, however, I’m not justified in believing that my circumstances are normal—if I’m not entitled to believe that I’m not dreaming—my having Carnegie Hall-like experiences gives me no good reason to think that I’m really there. Possibly, I’ve fallen asleep in Carnegie Hall and then dreamt that I’m in Carnegie Hall. But there is, at best, no reason for me to think so. I could just as well be anywhere else. The upshot is that a subject can't properly accept what she ordinarily believes about the world, unless she has some reason to reject the possibility that she's dreaming. If, however, the choice between those alternatives is underdetermined, the subject can accept neither. The skeptical argument can then proceed along the lines we've already seen.

The response just given grants that dreams may be veridical. But I’m not at all sure that such a view is correct. I think that it’s plausible that when you dream, you dream that you are awake, that you are seeing things, and so forth. In that case, the truth of what you dream is inconsistent with your dreaming it. To that extent, dreams can't be veridical. Going the other way around, it’s part of what you ordinarily believe about the world that you are now awake, that you are now really perceiving things, and that you aren’t dreaming. The possibility that you are
dreaming tout court is, therefore, inconsistent with your body of beliefs about the world taken as a whole.\textsuperscript{37}

4. The demand for certainty

According to a familiar view, the skeptic holds that knowledge requires certainty. You are certain that \( p \) only if you couldn’t be wrong about \( p \). The Deceiver Argument serves to make us vividly aware that all our beliefs about the external world are vulnerable to error, hence uncertain, hence not knowledge.\textsuperscript{38} To be fully explicit:

\begin{enumerate}
  \item [G1.] In order to know any proposition, one must be certain about that proposition.
  \item [G2.] Since one can’t rule out the possibility of massive sensory deception, it’s always possible that one is wrong about any mundane proposition \( m \).
  \item [G3.] Therefore, one isn’t certain that \( m \).
  \item [G4.] Therefore, one doesn’t know \( m \).
\end{enumerate}

The standing response to this line of argument is that the demand for certainty in (G1) raises or distorts the conditions for knowledge. If being certain means being in a position where you can't possibly be wrong, then you can be certain only if your evidence entails the truth of what you believe on the basis of that evidence. Requiring certainty in that sense would immediately exclude the possibility of any inductive knowledge whatsoever. However, we don’t ordinarily recognize such a requirement, and instead embrace some kind of fallibilism.\textsuperscript{39} The force of the Deceiver Argument, construed as (G1)-(G4), is therefore called into question.\textsuperscript{40}

Now, skepticism about the external world may sometimes be motivated by a demand for certainty, but we have seen that the Deceiver Argument can be formulated so that the certainty requirement doesn’t enter into it. The skeptic may appeal to the Underdetermination Principle
instead. His thesis is that our preference for the commonsense view over the Deceiver Hypothesis is ultimately an arbitrary one. The problem isn’t that the reasons we have for that choice fail to give us certainty—it isn’t that our reasons for belief are good, but somehow not good enough. The skeptic’s claim is rather that we have, at bottom, no reasons for our choice at all.

5. Cartesian and Humean skepticism compared

When we affirm, against the skeptic, that we do know things about the external world, we invoke some conception of what knowledge is and what it requires. The skeptic may leave this conception unchallenged. That is, he may attempt to show us that beliefs we hold don’t count as knowledge according to norms we ordinarily recognize. I will use the term domestic skepticism for a position of the first sort. Alternatively, the skeptic may contest the criteria we use to evaluate knowledge claims, as well as the claims themselves. In the face of this kind of skepticism, it would be pointless to show that what we believe satisfies our ordinary criteria for knowing. For, the more radical skeptic doesn’t concede that beliefs meeting those criteria ought to be considered knowledge. One way to challenge the standing of our epistemic principles would be to show that they are inconsistent with one another. Such a conflict among our principles, like a discrepancy between our principles and our practice, is an intellectual shortcoming we could hardly ignore. I will call skepticism motivated in this second way internecine skepticism. Finally, one might challenge our epistemic principles in some other way, perhaps holding them to other standards according to which ours are defective or wanting. I will call this third variety exotic skepticism. The differences among these sorts of skepticism are important, as will emerge below.
I construe the Deceiver Argument as an argument for a form of domestic skepticism. On its face, the argument proceeds entirely within our ordinary conception of knowledge. It seems to rest on epistemic principles which we recognize as correct, notably the Underdetermination Principle. These principles are supposed to have the consequences that:

A1. For any mundane proposition \( m \), if I know \( m \), then my rejection of \( SK \) in favor of \( m \) isn’t underdetermined.

A2. My rejection of \( SK \) in favor of \( m \) is underdetermined.

A3. Therefore, I have no knowledge of any mundane propositions.

The force of the argument is that we take ourselves to know mundane propositions that, by our own lights, we really don’t know. Our usual epistemic assessments conflict with our commitments as to what knowledge requires. The constraints on knowledge applied here are meant to be ones we employ and respect in cases where skepticism not at issue (especially, the Underdetermination Principle). To that extent, skeptical doubts are no different in kind from doubts that would ordinarily discredit knowledge claims. This line of thought is powerful and philosophically interesting. It would be a *reductio ad absurdum* of our common views as to the nature and scope of what we know. We can't respect the demands of logical consistency and remain indifferent to an argument conducted on these terms. At the same time, though, such an argument can be refuted, and we can see what form the refutation might take. It might be argued that we aren't really committed to the epistemic principles the skeptic appeals to. Alternatively, one might show that those principles don’t have the consequences the skeptic supposes, so that either (A1) or (A2) is ultimately unsupported.

My principal concern in this section will be to shed some light on how Cartesian skepticism, so understood, may be related or not related to Humean skepticism.
about inductive justification or inductive knowledge).\textsuperscript{42} It would seem that the Cartesian skeptic need not be a skeptic about induction. Since a Cartesian skeptic doesn’t dispute the legitimacy of our epistemic principles, she would have no reason to deny that true beliefs formed by accepted inductive procedures would count as knowledge. For example, we might know that our sense experience in the future will in relevant ways resemble that of the past. What the Cartesian skeptic denies is just that this experience gives us much knowledge of the external world.

I would expect the account I've just given to be controversial in several respects. One set of issues concerns the nature and role of epistemic principles as I've described them. You might feel that there just aren't any such things--they are at best a bad philosophical fiction. Or you might think that there are epistemic principles, or perhaps epistemic norms, but they can't be captured by propositions about the conditions under which someone has knowledge or justified belief. Or you might think that, if there are such principles, their scope is restricted, and they don’t apply--or don’t straightforwardly apply--in the cases the Cartesian skeptic brings up.\textsuperscript{43} I want to acknowledge these reservations. However, I won’t try to address them on this occasion.

Now, I've distinguished Cartesian from Humean skepticism, and I've said that in principle Cartesian skepticism carries with it no logical commitment to Humean skepticism. But it’s often thought that the motivations and arguments for the one are pretty much the same as the motivations and arguments for the other. That claim seems right at least so far: If our beliefs about the external world are justified by evidence, and the evidence for those beliefs doesn’t entail their truth, then the support for our beliefs about the world is inductive. If a general skepticism about induction holds, then our beliefs about the world don’t have the status of knowledge. Cartesian skepticism would follow from Humean skepticism as a special case.
The burden of what I said earlier was that Cartesian skepticism can be understood as a form of what I called domestic skepticism. The question arises whether there is a domestic version of Humean skepticism. If certainty were a requirement for knowledge as we understand it, domestic Humean skepticism would fall out immediately. Let F be some proposition I believe on the basis of inductive evidence. Since my evidence for F is inductive, my evidence doesn’t entail F. It follows that my belief that F isn’t certain. Then, given the certainty requirement, I don’t know F. But if certainty isn’t a necessary condition for knowledge, as I’ve said, then this way of obtaining a domestic version of Humean skepticism stalls at the outset.44

In fact, it may be tempting to say something like the following: We use inductive reasoning all the time, and credit ourselves with inductive knowledge as a matter of course. Hence, there is every reason to think that such knowledge is licensed by epistemic principles we accept. In that case, the only way to argue for inductive skepticism would be to challenge our principles. Inductive skepticism, it seems, is bound to be exotic.45

But consider a line of thought attributed to Hume himself:

H1. Consider an inductive rule R, which licenses an inference from E to H. You won’t be justified in believing H unless you have reason to believe that the application of R will produce a true belief (in this instance).46

H2. But to claim that the application of R will produce a true belief (in this instance) is to make an empirical claim about the world. (It isn’t a claim about what epistemic principles do or don’t command your allegiance).

H3. You have no non-circular justification for that claim about the world; that is, you have no reason to believe that the application of R will produce a true belief (in this instance).

H4. Hence, your belief that H isn’t justified.
This line of thought appears to be an argument for domestic Humean skepticism. It aims to show that epistemic principles to which we are committed, including the impermissibility of circular justification, don’t allow for inductive justification or inductive knowledge.47

Hume's argument so construed is very similar to a skeptical argument based on what Richard Fumerton calls the “Principle of Inferential Justification”:

(PIJ) To be justified in believing one proposition \(H\) on the basis of another proposition \(E\), one must be (1) justified in believing \(E\), and (2) justified in believing that \(E\) makes probable \(H\) (Fumerton, 1995, p. 36; notation altered).

There is a lot going on here.48 As stated, the second clause of the PIJ may seem ambiguous (henceforth, I will ignore the first clause). To get clear about this point, and for purposes of further discussion, let me introduce some more terminology. First, we have an inductive rule such that one’s evidence, \(E\), justifies \(H\), where \(E\) doesn’t entail \(H\). Corresponding to that rule is a claim about the world, to the effect that an inference from \(E\) to \(H\) yields a true belief. The weakest such claim, I think, is a material conditional ‘(\(E \varepsilon H\))’, which I will call the reduced rule. Moving in the other direction, there is the proviso that one is justified in believing or accepting that the original rule holds. I will call this the elevated rule.

Now, let us return to the PIJ. If we read the phrase ‘makes probable’ in Clause (2) epistemically, as ‘justifies’, the PIJ would say that an inductive inference from \(E\) to \(H\) provides justification for \(H\) only if one has reason to believe that \(E\) justifies \(H\). That is, the inductive rule holds only if the elevated rule does. I will refer to this condition as the requirement that an inductive rule must be secured from above.49

Suppose that the inductive rule isn’t sound unless the elevated rule is.50 Presumably the same will be true with respect to the elevated rule itself. The soundness of the latter will depend
upon there being a yet higher-level rule that secures it, and so on. The requirement that an inductive rule needs to be secured from above seems to generate an infinite regress of justification requirements which could never be satisfied. Hence, no inductive rule is sound, and no belief underwritten by such a rule is really justified.

The idea that Humean skepticism is motivated by a certain kind of regress argument is familiar. In fact, Barry Stroud tentatively ascribes such an argument to Hume. Stroud writes:

No one who has observed a constant conjunction between As and Bs and is currently observing an A will reasonably believe on that basis that a B will occur unless he also reasonably believes that what he has experienced is good reason to believe that a B will follow. But, Hume asks, how could one ever come reasonably to believe that? How is one to get a reasonable belief that a past constant conjunction between As and Bs, along with a currently observed A, is good reason to believe that a B will occur? (Hume, p. 63).

On the face of things, inductive skepticism of this sort counts as exotic. A skeptic who deploys this regress argument attacks the justification of our beliefs by attacking the rules which license those beliefs. That is pretty much the essence of exotic skepticism, as I defined it.

There is more to say, though. The requirement that an inductive rule has to be secured from above is a consequence of the so-called JJ Thesis:

**JJ Thesis:** If S has a justified belief that X, then S is justified in the belief that her belief that X is justified.

The status of the JJ Thesis is controversial. A prominent view is that it arises from a “level-confusion”, and we should not allow ourselves be confused. To be justified in believing a proposition X is one thing, and to be justified in believing that you are justified in believing X is something else again. The former simply doesn’t entail the latter.

Nevertheless, the JJ Thesis has appeal to some philosophers, who maintain that it is constitutive for justification as we understand it. In that case, skepticism about induction which...
invokes the JJ Thesis wouldn’t be exotic, in my terminology. Rather, we would have a
demonstration that there is a conflict among our epistemic principles, i.e. the principle(s) that
license inductive inference, and the JJ Thesis itself. The skepticism that resulted would count as
internecine rather than exotic. But even if all this were so, it’s significant that the argument just
considered relies on the JJ Thesis, and that the Deceiver Argument for Cartesian skepticism
doesn’t. Humean and Cartesian skepticism differ in the kinds of epistemic shortcoming they
ascribe to us. Niceties aside, the Cartesian skeptic thinks that we don’t have knowledge of
mundane propositions because we lack evidence for them. By contrast, the Humean skeptic who
appeals to the JJ Thesis doesn’t claim that our beliefs lack evidential support. The difficulty is
rather that, in the absence of any (sound) inductive rules, nothing counts as inductive evidence at
all.53

We have been considering the skeptical implications of the PIJ, when the phrase ‘makes
probable’ is understood epistemically. The other way to read the phrase is to take ‘makes
probable’ non-epistemically. Then, the upshot of the PIJ is that a necessary condition for S’s
having a justified belief that H, on the basis of E, is that S have justification for some proposition
about the world like (E & Probably H). So far as my concerns go, the probabilistic character of
the consequent is a distraction. So I will understand the PIJ to say that the inductive rule doesn’t
hold unless one has justification for the reduced rule (E & H). I will call this condition the
requirement that a rule has to be secured from below.54 Skepticism threatens if there is no non-
circular justification for the reduced rule.55 Such skepticism would be domestic Humean
skepticism, if we are in fact committed to the PIJ as currently understood and to a principle that
forbids circles of justification.
This way of proceeding, like the Humean argument set out earlier in this section, invites the following response. Both suffer from the same defect, viz., that they make non-circular justification for the reduced rule a necessary condition for the soundness of the inductive rule itself. If this requirement were met, you would be independently justified in believing \((E \varepsilon H)\). Suppose, in addition, that you are justified in believing \(E\). \(E\) and \((E \varepsilon H)\) together entail \(H\). In that case you would have deductive justification for believing \(H\). Thus, a sound inductive rule can be secured from below only if it is superfluous! One might insist that no sound inductive rule needs to satisfy such a condition, or, at least, that we ourselves recognize no such demand on inductive rules. In that event, skepticism about induction motivated by a demand for security from below counts as exotic.\(^{56}\) And, given the previous discussion, we might conclude more broadly that no prominent form of skepticism about induction is domestic in character.

However, this judgment may be premature. The point made in the previous paragraph is, of course, related to the objection that the Humean argument for inductive skepticism presupposes that justification has to be deductive. But the twist here is that such a view of justification isn’t simply assumed at the outset. Rather, it seems to emerge from the requirement that inductive rules have to secured from below. The force of this requirement is that, if you are justified in inferring \(H\) from \(E\), you are justified in believing \((E \varepsilon H)\). \((E \varepsilon H)\) is equivalent to \(-(E \& -H)\), which might be spelled out as “your evidence isn’t in this case misleading you about \(H\)”. Moreover, in line with what I said earlier, \(-(E \& -H)\) isn’t a claim about what justifies what, it rather looks to be a substantive claim about the world. As such, it needs to be justified by evidence—or, at least, so one might think. What would that evidence be? To put the question
somewhat provocatively, when you make an inductive inference, what evidence do you have that your evidence isn’t misleading you into drawing a false conclusion?

Before pursuing these issues, it might be noted that this kind of worry about inductive knowledge seems closely related to skeptical worries about perceptual knowledge (and, thus, to skepticism about the external world generally). The parallel is this. If you are a brain in a vat, your perceptual evidence $P$ for a mundane proposition $M$ is misleading. That is, SK entails that $(P \& -M)$. Since $-(P \& -M)$ is a claim about the world, you know that claim only if you have evidence for it. What is your evidence in this case, i.e., what is your evidence that you aren’t a brain in a vat? Presumably, that evidence is $P$ itself (or $P$ supplemented by other perceptual evidence). How plausible this view might be depends on the nature of your perceptual evidence, and how it is supposed to justify your beliefs about the external world. If $P$ is something like ‘It appears to me as though I have a hand’ then it’s not obvious how $P$ counts as direct evidence against the proposition that I’m a thoroughly deceived brain in a vat. However, that worry might be substantially relieved if $P$ (and other perceptual evidence you have) licenses the acceptance of $M$, and the rejection of SK, as an inference to the best explanation.

Let us now return to the problem of misleading evidence as it arises in connection with induction. Suppose your evidence is that all observed emeralds are green. You infer, and come know, that all emeralds are green. You also know that it isn’t the case that all observed emeralds are green yet your evidence has misled you (say because there is a blue emerald buried deep in the earth that no one has seen or will ever see). We may ask, what is your evidence against that possibility? What is your evidence that $-(O \& -G)$? Perhaps your observations of emeralds, $O$, give you evidence that all emeralds are green, $G$, and those observations are also evidence for -
(O & -G).\textsuperscript{60} Nevertheless, one may still harbor the impression that something is amiss with this response. One might think that, in general, E can't be evidence that E itself isn't misleading.\textsuperscript{61}

There are many questions at this point which I find perplexing. I’m not sure whether there really is a problem of misleading evidence with respect to induction, and if there is, I’m not sure whether or how that problem might be answered.\textsuperscript{62} And, more central to the concerns of this paper, I’m not even sure how this problem should be characterized. Is the threat to inductive knowledge domestic, internecine, or exotic? I feel confident of just this much: We may still ask whether Cartesian skepticism follows from the Underdetermination Principle. A firm answer to that question--even if other questions remain open--would be well worth having.

7. Conclusion

My goal in this paper has been to identify and examine a version of Cartesian skepticism, a domestic one motivated by the Underdetermination Principle. Cartesian skepticism so understood can't be ignored or dismissed, but it can be refuted (at least in principle). It seems to me that contemporary discussions of skepticism sometimes go awry because (i) they mistakenly evaluate the relation between the Deceiver Argument and the Epistemic Impairment Argument; or (ii) they overtly or tacitly assume that, for the skeptic, knowledge requires certainty; or (iii) they misjudge the relation between Cartesian skepticism and Humean skepticism. I hope that it’s now clearer what Cartesian skepticism is, and isn’t.\textsuperscript{63}
ENDNOTES

1. This suggestion is very rough, because its scope would need to be restricted to hypotheses that bear some appropriate relation to the data at hand. Otherwise, knowledge is excluded so long as the evidence one has doesn’t settle every open question where two propositions compete.

2. According to what I’ve said, you would arbitrarily believe p if p had less epistemic merit than some competitor to p. Your so believing would be epistemically defective, but it’s odd to characterize the defect as arbitrariness on your part. I think such a point would be well taken, but to set things right would make the exposition much more complicated, without affecting any substantive issues. Consequently, I’ve left the apparatus as it is.

3. What underdetermination is, and how it bears on the acceptability of beliefs or hypotheses, is a much more complex matter than my very limited remarks indicate. There is a large literature on the topic; two notable treatments are Laudan and Leplin (1991) and Earman (1993). However, I think that for my purposes here, the rough characterization I’ve given ought to do. That is not to say that what follows covers all the important questions about skepticism and underdetermination.

4. I mean to be neutral about whether epistemic principles have truth-values. I will call principles which have positive status for us “sound”.

5. This way of describing the problem of skepticism will seem very wrong-headed to someone hostile to foundationalism or friendly to direct realism, and what I’ve said here is meant to be suggestive rather than definitive. See Michael Williams, Groundless Belief, Williams, Unnatural Doubts, and Alex Byrne, “How Hard Are the Skeptical Paradoxes” for vigorous objections on this point. I address concerns of this sort in “Skepticism and Foundationalism: A Reply to Michael Williams”.

6. I assume that if we had no perceptual knowledge of the external world, we would have no knowledge of the world whatsoever (although see Note #7). That would follow from traditional views about epistemic priority, according to which non-perceptual knowledge about the world is based on perceptual knowledge. It would also follow according to at least some other views; see W. V. Quine, “The Nature of Natural Knowledge”.

7. A proponent of the Deceiver Argument may have to concede that we have some minimal knowledge of the world. For example, the belief that my experience is caused by something other than myself wouldn’t be undercut by the possibility that my experience is caused by some deceptive apparatus. The definition of a mundane proposition given here is meant to accommodate such exceptions.
8. (A2) stands in need of various refinements, especially if epistemic merit is holistic in some important way. An analysis of the Dream Argument that parallels (A1)-(A3) can also be given. However, the Dreaming Argument may involve additional complexities of its own, and so I take the Deception Argument as canonical. For a discussion of an important objection to proceeding in this way, see §3.

9. I take epistemic merit to be at least partly constitutive of epistemic justification, and I assume that support by one’s evidence contributes towards epistemic merit. See §2. For discussion of (i), (ii) and (iii), see “Cartesian Skepticism and Inference to the Best Explanation”, “Dismissing Skeptical Possibilities”, and “Sklar on Methodological Conservatism”.

10. It’s hard to give a precise formulation of the Closure Principle. Knowledge isn’t closed under logical implication as such; you can know a proposition without knowing all of its logical consequences. The restriction that knowledge is closed under known logical implication is more plausible, but still not free of difficulties. Corresponding issues arise in connection with other principles I consider below. However, those issues aren’t my concern here, and trying to take them into account would greatly complicate the discussion. For that reason, in what follows, I treat all principles in unrestricted form.

11. For example, the skeptic might argue that we fail to know -SK, because (i) we aren’t certain that -SK; (ii) whatever justification we have for -SK involves an unacceptable circle or regress; or (iii) when we believe -SK, we fail to satisfy a tracking condition for knowledge. See Cohen, “Two Kinds of Skeptical Argument” and Byrne, “How Hard Are the Skeptical Paradoxes?”. I discuss (i), some versions of (ii), and (iii) below.

12. Notably, by Fred Dretske and Robert Nozick. I’ve defended the principle in “Are There Counterexamples to the Closure Principle?” and “Tracking, Closure and Inductive Knowledge”. Current climate is now more favorable towards the Closure Principle than before, but at least some ways of defending the principle seem unsuccessful to me. On this point, see “The New Relevant Alternatives Theory” and “Subjunctivitis”.

13. For recent discussion, see Brueckner, “The Structure of the Skeptical Argument” and Cohen, “Two Kinds of Skeptical Argument”. While I disagree with both authors at various points, I think their articles are highly clarifying.

14. My approach follows Dretske’s as presented in “Epistemic Operators”.

15. “Evidential support” is a term of art, used in various ways. As I think of it, it is a graded notion, so that S’s evidence may support a hypothesis more or less strongly.

16. I think that (CK) and (CJ) are right, or close to being right. I have reservations about (CE), though.
17. (CN) follows pretty directly from the way non-arbitrary acceptance was defined. (i) Suppose S non-arbitrarily accepts p. By definition, p is greater in epistemic merit (for S) than any of its competitors, and, therefore, (ii) S can non-arbitrarily reject that competitor. (iii) Suppose further that p entails z. Then -z is a competitor to p. (iv) From (ii), if S can non-arbitrarily accept p, S can non-arbitrarily reject -z. (v) That is, S can non-arbitrarily accept --z, which is to say that S can non-arbitrarily accept z. In short, if (i) N(p) and (iii) (p entails z), then (v) N(z), which is (CN). I’m supposing that the epistemic merit (for S) of p is fixed and doesn’t vary as a function of the proposition with which it competes. Dretske, for one, might deny this claim. See below.

18. Cohen compares (CJ) and (UP) rather than (CK) and (UP) as I have done. But structurally everything is the same. Moreover, if what I say below about (CK) and (UP) is correct, the same goes for (CJ) and (UP). I should note that Cohen later allows that (A1)-(A3) “may provide an independent route to skepticism” (p. 156).

19. (S1)-(S3) also stands in that relation to (A1)-(A3).

20. There is some awkwardness here, because these epistemic principles are presumably necessarily true, if true at all. Consequently, one needs to be careful in talking about entailment relations between such principles, and also in talking about the possibility that a principle “might” be false.

21. What Cohen has shown is that if the Underdetermination Principle can be used to underwrite a successful skeptical argument, then the premises (C1) and (C2) will be true, whether the Closure Principle holds or not. That fact licenses no conclusion about the precedence or utility of either principle, so far as the skeptic is concerned.

22. For example, employing Nozick’s idea, you do track the truth of Z, but not that of -CDM. In that sense your belief about Z is reliable in a way that your belief about -CDM isn’t. Since, in my view, tracking isn’t necessary for knowledge, this particular way of challenging the Underdetermination Principle doesn’t work. There is more to the story, however.

23. Using the machinery from above, this position could be characterized as follows. Knowledge and non-arbitrary acceptance require support by one’s evidence (WKE, WNE). However, (CE) fails, even when the entailing proposition is known or justified. The conclusion is then that closure fails for the other operators as well. Someone concerned to uphold (CK) could do so by defending (CE) or by denying the weakening principles. For example, latter-day relevant alternatives theorists allow that you can know the falsity of the competitor q if, in the appropriate context, the possibility that q is an irrelevant alternative. In that case you know -q without evidence which supports -q, so (WKE) doesn’t hold and (CK) can be preserved.

24. I am considering the treatment Dretske gives in “Epistemic Operators”. He writes, “The evidence you had for thinking them zebras has been effectively neutralized, since it does not count toward their not being mules cleverly disguised to look like zebras” (p. 1016). One way of
taking this comment is in line with what I say in the text. But, by saying that your evidence is “neutralized”, Dretske may have meant that a shift occurs, so that the evidential support, and thus the epistemic merit, of Z isn’t comparable with the evidential support, and epistemic merit, of CDM. On such a view, there seems to be no content to a non-relativized notion of non-arbitrary acceptance and rejection, so (UP) is empty or meaningless. It certainly wouldn’t be available for use in skeptical arguments. Another remark by Dretske is pertinent. At one point he seems to allow that Z is “more plausible” than CDM, although the implausibility of CDM in these circumstances isn’t sufficient for you to know that CDM is false. To that extent, Dretske might deny that Z and CDM have equal epistemic merit, and that a choice between them is forbidden by the Underdetermination Principle.

25. The Underdetermination Principle applies to hypotheses that are competitors, and it underwrites (A1) only if m and SK are logically incompatible. In the versions of the Dreaming Argument I’m about to consider, SK isn’t specified to be logically incompatible with m.

26. In an now famous example, G. E. Moore describes how a Duke of Devonshire once gave a speech in the House of Lords, while asleep and dreaming that he was giving a speech in the House of Lords. Moore apparently thinks that the Duke did not know what he was doing. See “Certainty”, p. 47.

27. See Stroud, The Significance of Philosophical Skepticism, p. 14-5; Wright, “Facts and Certainty”, p. 431-2, Pryor, “The Skeptic and the Dogmatist”, p. 522-3. Pryor considers a version of the skeptical argument that encompasses the possibility of epistemic impairment, but which differs from those I consider here. Pryor takes the skeptic’s key premise to be: “If you’re to know a proposition p on the basis of certain experiences or grounds E, then for every q which is ‘bad’ relative to E and p, you have to be in a position to know q to be false...antecedently to knowing p on the basis of E” (p. 528). This proposal raises some difficult issues about epistemic priority. I’m inclined to think that the argument Pryor considers isn’t the best the skeptic can deploy, but I won’t pursue the point here. However, if what I say below is right, the skeptic can respect the motivations behind the Epistemic Impairment Argument without proceeding in the way Pryor suggests.

28. Let z be a clear logical consequence for me of m; not-z is therefore inconsistent with m and with my knowing m. (E2) provides that I know that not-z is false. That is, I know z. So, it follows from (E2) that I know any clear logical consequence of a proposition I know, which is the Closure Principle.

29. Schematically, (E2) says [K(p) & (K(p) => not-z)] => K(not-z). As an instance of (E2), we have [K(p) & K(p) => not-not-K(p)] => K(not-not-Kp). K(p) => not-not-K(p) is trivially true, so we can simplify to K(p) => K(not-not-K(p)), or K(p) => KK(p). Strictly speaking, I suppose, the skeptical argument we are now considering doesn’t require the Iterativity Principle in full generality. (E2) and the version of the Iterativity Principle that follows from it could be
restricted to mundane propositions. But this restriction would lack any real motivation, and wouldn’t allow the skeptic to escape the all the difficulties (E2) would create.

30. Stroud identifies the skeptic's key principle as \([K(p) \& ((K(p) \Rightarrow q)) \Rightarrow K(q)]\), which is equivalent to the premise rendered as (E2) (Stroud, p. 28). Wright offers the weaker \([K(p) \& K(K(p) \Rightarrow q)] \Rightarrow K(q)\), which he attributes to Stroud (Wright, “Dreaming and Skepticism: Imploding the Demon”, p. 91-92). Wright's formulation yields the Iterativity Principle so long as the knowing subject knows that knowing p entails knowing p--surely, this isn’t much of an obstacle. Other authors have claimed that the skeptic's argument explicitly requires a connection between first-order and second-order knowledge. See, inter alia, Alston, “Level Confusions in Epistemology”.


32. I think that what I say here and below would carry over to the skeptical hypothesis that one is suffering from hallucinations.

33. For a related discussion, see David Lewis, “Veridical Hallucination and Prosthetic Vision”. Lewis observes that “veridical hallucinations are improbable, and a long run of them is still more improbable” (Dancy, p. 86). See also Crispin Wright, “Dreaming and Skepticism: Imploding the Demon” (p. 91).

34. If you like, you can put the point in explicitly probabilistic terms. The conditional probability I assign to (I’m in Carnegie Hall/I’m dreaming that I’m in Carnegie Hall) is very low. Suppose, then, that I’m having experiences as of being in Carnegie Hall, and that I can assign high probability to my being in Carnegie Hall, given that I’m having such experiences. It must be that I can assign high probability to the proposition that I’m not dreaming I’m in Carnegie Hall. Now, John Pollock and others distinguish two ways in which one's reasons to believe a proposition may be undone. On this view, there are rebutting defeaters that support the denial of the proposition, as well as undercutting defeaters that subvert the evidential connection between one's reasons and the proposition. ‘I’m dreaming’ would then be seen as undercutting the justification ‘I’m having Carnegie Hall-experiences’ gives to ‘I’m in Carnegie Hall’. I don’t accept this dichotomy as drawn, and I’m dubious about the existence of a special category of undercutting defeaters.

35. There is the phenomenon of “lucid dreaming” in which one is aware that one is dreaming. That would be the exception that proves the rule.

36. An objection here is that even if I dream that I perceive that m, and I’m wrong, I may also be dreaming that m simpliciter, and I may be right to that extent. This point certainly has some force, but I’m not sure just what. One difficulty is that it’s not true in general that if you dream that p, and p entails q, that you dream that q. A more general concern is exactly what it is for
dreams to be “veridical” or “non-veridical” in the first place—a good question to which I don’t have a good answer. Richard Feldman called these issues to my attention.

37. See “Cartesian Skepticism and Inference to the Best Explanation”. There is another twist to the Dreaming Argument I won't take up here. Austin claims that dreams are phenomenologically different from waking states. Dreaming, then, involves a double liability. The dreamer's experience is unveridical and the dreamer's ability to recognize that she is dreaming on the basis of phenomenological indications is somehow disabled. The possibility that one is in that kind of state gives rise to complications that a consideration of more straightforward skeptical hypotheses (the brain in the vat) seems to bypass. However, Timothy Williamson maintains that a brain in a vat would be in a situation in some ways quite analogous to the state of the dreamer as just described. See Williamson, Knowledge and its Limits, p. 180.

38. What certainty is, or might be, is a complicated matter; so, too, is the relation between certainty and skepticism. For more discussion, Roderick Firth, “The Anatomy of Certainty”, Peter Klein, Certainty, Klein, “Immune Belief Systems”, and, for a nice overview, Richard Feldman, Epistemology. An objection to the construal here is that it conflates certainty with infallibility, and thus belief in any necessarily true proposition would improperly count as certain; a way of responding to this objection is suggested by David Lewis, “Elusive Knowledge”, p. 551-2.

39. To borrow Austin’s remark, “Enough is enough: it is not everything”, “Other Minds”, p. 55. But one reason to have misgivings about this view is the opposition to it. David Lewis: “It seems as if knowledge must be by definition infallible...To speak of fallible knowledge, of knowledge despite uneliminated possibilities of error, just sounds contradictory” (“Elusive Knowledge”, p. 549) and Timothy Williamson: “If one's evidence is insufficient for the truth of one's belief, in the sense that one could falsely believe p with the very same evidence, then one seems to know p in at best a stretched and weakened sense of ‘know’” (Knowledge and Its Limits, p. 174).

40. In the terminology I use later, skepticism which rests on the certainty requirement counts as “exotic”. See §5.

41. The characterization I’m about to offer of the dialectic between the skeptic and anti-skeptic has been influenced by Peter Klein, Certainty, Chapter One. See also Pryor, “The Skeptic and the Dogmatist”, p. 517.

42. There is a family of positions that can be called “Humean skepticism” or “skepticism about inductive knowledge”. Two versions are: (i) knowledge of the observed can't yield knowledge of the unobserved; (ii) knowledge that F requires evidence which entails F. Getting clear about how such views are related to one another is important, but by no means easy, and to do so one would need to reckon with Goodman's New Riddle as well. It might be worth remarking that standard treatments of skepticism about induction frequently describe it as what I would call the unmet demand that inductive rules be secured from below or the unmet demand that inductive
rules be secured from above, and these are often conflated. See, e.g. Howson, *Hume's Problem*, Chapter One and Swinburne, *The Justification of Induction*, introduction. Finally, I should note that at least some Bayesians deny that induction poses any problems that require (further) philosophical attention, although they differ among themselves as to why that might be. See Howson and Franklin, Van Fraassen, and Howson; for a criticism, see Kaplan.

43. I take Michael Williams to endorse the first or third of these positions, or both. Stanley Cavell may hold the second or the third. And perhaps one or more of these views is attributable to Wittgenstein. However, caution about such an attribution is in order. See *On Certainty* #634.

44. Similarly, one might take the view that only the possession of evidence which entails P gives one a reason to accept P and to reject its competitors. Then, Humean skepticism like Cartesian skepticism will appear to be motivated by the Underdetermination Principle. To put the same point a little differently, the Strong Underdetermination Principle introduced in §1 yields both Cartesian and Humean skepticism.

45. One might also argue that we credit ourselves with knowledge of the external world as a matter of course, so the epistemic principles we accept must allow for such knowledge (the Deceiver Argument notwithstanding). Hence, Cartesian skepticism must be exotic. For objections to this general line of thought, see Vinci, “Skepticism and Doxastic Conservatism”.

46. Hartry Field argues that it’s very problematic to ascribe reliability to an inductive method in general, “Apriority as an Evaluative Notion”, p. 125-126, and I’m ready to agree. That said, there is still the question of whether the belief which results from a particular inductive inference is true. Field, if I read him correctly, holds that it’s rational to believe so, but not because we have evidence which makes that belief rational; see Field, p. 123. I don’t know whether Field’s non-factualism about the *a priori* creates any strain at this point.

47. I won’t enter into the question of what kind of circularity ("rule-circularity", "premise-circularity", or perhaps some other kind), if any, might be involved here, or the question of whether the circularity involved is unacceptable. But one observation may be pertinent. Suppose Humean skepticism is meant to be domestic, i.e., the Humean skeptic concedes the legitimacy of our epistemic principles. If some such principles do accord positive epistemic status to inductive inference, then maybe one could properly appeal to those principles in replying to the Humean skeptic. In other words, an inductive justification of induction might have some cogency if deployed against domestic Humean skepticism.

48. In general, it’s important to distinguish *impersonal* justification from *personal* justification. The former, as I think of it, has to do with the justification of *propositions*, while the latter has to do with the justification of *beliefs*. How the two types of justification are related to one another, in general, isn’t straightforward. The PIJ states a condition on personal justification, which is supposed to hold between a justified belief that H and a justified belief that E. The second clause of the PIJ, on one reading, requires *personal* justification for a belief concerning a relation of *impersonal* justification between the propositions E and H.
49. Fumerton rejects this reading of the PIJ, p. 63.

50. Yet a further complication is whether ‘unless’ signifies logical implication, or whether it also marks a relation of epistemic priority. My impression is that adopting the latter reading would exacerbate the pressures I identify below, but not otherwise alter them. So, in my presentation, I take the dependence between the various rules to be entailment.

51. See Alston “Level Confusions in Epistemology”.

52. See Bonjour, “Externalist Theories of Empirical Knowledge”.

53. The JJ Thesis may count against principles of deductive justification as well as principles of inductive justification. In that event, the JJ Thesis might have the consequence that there is no such thing as evidence of any sort.

54. Fumerton himself seems to come down in favor of a non-epistemic reading like the one considered here. But he considers, and rejects, the idea that the force of Clause (2) of the PIJ could be captured by a material conditional like the one in the text. However, Fumerton’s reasons for dissatisfaction are different from the ones I express below. In the end, Fumerton’s worry about inductive inferential justification seems to have most to do with the unintelligibility to him of a probabilification relation in nature, which, he believes, inductive inferential justification would require. See Fumerton, p. 85–88. I don’t fully agree with Fumerton on this point, and on some others, but to sort out the differences in our views would be a large undertaking. Still, the reader should bear in mind that the interpretation of the PIJ, and the use to which I put it, should not be attributed to Fumerton.

55. If you invoked the original rule in justifying belief in the reduced rule, you would then in some way be relying on the original rule to justify itself. That is supposed to be unacceptably circular.

56. I anticipate the following objection: I have classified inductive skepticism which requires security from below as exotic simply because that demand is inconsistent with the possibility of inductive knowledge. In other words, I deny that this is domestic inductive skepticism just because it is inductive skepticism. My point is rather that, as things stand, the demand that inductive rules be secured from below is no more than an assertion of skepticism about induction. Contrast this demand with an appeal to the Underdetermination Principle. In the latter case, but not the former, the challenge to knowledge has a form that we ordinarily recognize as legitimate and compelling. It may be, though, that demand for support from below does have that form, after all. See the following discussion.

58. On the view advanced by James Pryor and others, experience provides you with prima facie evidence that m (where m is a mundane proposition, not a proposition about experience or how things appear). Proponents of this view may then want to say that experience also provides you with evidence that -SK. Alternatively, they may say that experience gives you evidence, and justification for the belief that m, from which you infer, with justification, -SK. The prospect of just this kind of resolution of the problem of “misleading evidence” for perception is, perhaps, one of the most attractive aspects of this position. But I have some doubt that this resolution holds up under scrutiny; see “Dismissing Skeptical Possibilities”. Timothy Williamson’s position, as I understand it, is that a properly endowed subject in a normal environment has knowledge and evidence for mundane propositions like m. Given Williamson’s views about evidence, it may be impossible for the subject’s evidence for m to be misleading. See Williamson, *Knowledge and Its Limits*, especially Chapters Eight and Nine.

59. This presentation is very hasty. It should not be assumed that the explananda, for which M would be (part of) the explanans, are propositions about how things appear to be. See “Cartesian Skepticism and Inference to the Best Explanation” and “Skepticism and Foundationalism”.

60. If evidential support obeys something like Hempel’s Special Consequence Condition, then, if E is evidence for H, it is likewise evidence for -(E & -H). But the status of this condition is itself open to doubt.

61. What I’m calling the “problem of misleading evidence” is closely related to Goodman’s New Riddle of Induction. I should note that the problem of misleading evidence is also related to the status of epistemic “bootstrapping” as discussed in Vogel “Reliabilism Leveled” and Cohen, “Basic Knowledge and the Problem of Easy Knowledge.” I hope to address this connection in future work.

62. Hawthorne, “Deeply Contingent A Priori Knowledge” and Bonjour, *In Defense of Pure Reason* raise the possibility that you could be justified a priori in believing that your evidence isn’t misleading; see also Field’s view, discussed in Note 38. Relevant alternatives theories and some reliabilist accounts promise a satisfactory resolution of the problem of misleading evidence, but if what I’ve argued elsewhere is right, they don’t deliver. See “The New Relevant Alternatives Theory” and “Subjunctivitis”.

63. The ideas in this paper have been on my mind for a long time now, and I’m indebted to many individuals and audiences for their criticisms and suggestions. Most recently, I have benefited from comments kindly provided by Stewart Cohen, Richard Feldman, Richard Fumerton, Thomas Kelly, and Scott Sturgeon. I also want to thank Alex Byrne, Joseph Cruz, Michael Glanzberg, Jeffrey King, Sarah McGrath, Sherrilyn Roush and Susanna Siegel. Some of this material was presented in lectures to the philosophy departments at MIT and Rice University, and I’m grateful for the helpful discussions on those occasions.