Philosophical Perspectives, 13, Epistemology, 1999

THE NEW RELEVANT ALTERNATIVES THEORY

Jonathan Vogel
Amherst College

A prominent theme in much recent epistemology is that the requirements for knowledge are limited and context-dependent. The Relevant Alternatives Theory (RAT) is a systematic articulation of this point of view. Since it was put forward by Fred Dretske and Alvin Goldman, the RAT has undergone significant evolution, and it now enjoys broad acceptance. But I will argue that the theory in its current form (the "New Relevant Alternatives Theory") is deeply defective. It fails as a response to skepticism, and is untenable as a positive account of what and how we know.

1. Elements of the New Theory

It will be helpful, for expository purposes, to present a rough account of how the RAT has taken shape. I'll begin with the version of the theory presented by Fred Dretske in the 1970's.[1] We need some terminology at this point. An *alternative* A to a proposition P is a logical contrary of P; A is an alternative to P just in case P entails −A. Dretske puts the central thesis of the RAT as follows: "Knowledge...(is) an evidential state in which all relevant alternatives [to what is known] are eliminated" (1981), p. 367. To know P, one needs to "eliminate" only the relevant alternatives to P. You can know P despite your not having evidence that "eliminates" one or more irrelevant alternatives to P. Clearly, what makes an alternative relevant is an important question; so, too, is what it means to eliminate or rule out an alternative. I will address these issues in detail below, so let's leave them aside for now.

As Dretske sees things, a principal virtue of the relevant alternatives approach is that it can serve as a corrective to skepticism. He analyzes the skeptical argument as follows:

(1) If you know some *mundane* proposition M, then you know that you aren't the victim of massive sensory deception.[2]
(2) You don't know that you aren't the victim of massive sensory deception.
(3) Therefore, you don't know M.

Dretske feels obliged to concede (2), apparently because he thinks we don't have evidence which allows us to exclude the deceiver hypothesis. However, Dretske wants to resist the argument's conclusion; he wants to maintain that you do know mundane propositions. Accordingly, he rejects (1).

Every mundane proposition M entails that you aren't a victim of massive sensory deception to whom it appears falsely that M. Therefore, in rejecting (1), Dretske is saying that you can know a proposition, M, yet not know a proposition entailed by M. We can put the point in more general terms, as Dretske himself does. One might think that knowledge is closed under logical implication. That is, it is natural to assume:

(Closure Principle) If S knows that p and p entails q, then S knows that q.

The skeptic apparently relies on the validity of the Closure Principle to support (1).[3] But, according to Dretske, the Closure Principle isn't valid in all cases. In fact, it fails in the very instance where skeptic seeks to apply it.

Simply to assert that the Closure Principle is invalid, and that step (1) of the skeptical argument is false, would be *ad hoc* and unconvincing. However, Dretske thought that failures of the Closure Principle occur with some frequency in ordinary circumstances. He claims that the principle fails in the "Zebra Case":

> *Zebra Case*. You go to the zoo, and see a striped equine creature standing in a pen marked "Zebra". It looks for all the world like a zebra, so you know Z, that the animal in the pen is a zebra. However, someone could have painted stripes on a mule to make it look like a zebra, and put it in the pen. If that had happened, you wouldn't be able to detect it. Thus, you fail to know −CDM, that the animal in the pen isn't a cleverly disguised mule.

Z entails −CDM. So, according to Dretske, the Closure Principle is violated here, because you *do* know Z while failing to know −CDM.

Dretske invoked the RAT to explain why and how the Closure Principle fails, as follows. Take the Zebra Case. Dretske holds that you know Z, that the animal in the pen is a zebra. Your knowing this fact depends upon your eliminating various relevant alternatives to Z. You can see that what's inside the pen isn't a lion, a zookeeper, a picnic table, and so forth. However, there are some alternatives to Z you are unable to eliminate, e.g. CDM, that the pen contains a cleverly disguised mule. Dretske maintains that this possibility is an irrelevant alternative to Z. Hence, you do succeed in eliminating all the *relevant* alternatives to Z, and satisfy the conditions for knowing Z. At the same time, you don't know −CDM. For, presumably, the possibility that there is a cleverly disguised mule in the pen *is* a relevant alternative to the proposition that there isn't a cleverly disguised mule there. Since you can't eliminate CDM, and CDM is a relevant alternative to −CDM, you don't know −CDM. In short, the uneliminated alternative CDM is irrelevant with respect to Z, but relevant with respect to −CDM. It is because of

this difference that you can know Z, yet fail to know −CDM, and the Closure Principle fails in this case.

I've argued elsewhere for the general validity of the Closure Principle.[4] If the point of the RAT were solely to provide for failures of epistemic closure, the theory would be ill-conceived and provide no basis for a reply to skepticism. However, as Gail Stine showed, it is possible to re-cast the RAT so that it preserves the Closure Principle. Dretske assumed that knowledge of a proposition requires having evidence that supports belief in that proposition. Since you lack evidence against the possibility that the animal you see is a cleverly disguised mule (i.e. since you lack evidence for −CDM) you don't know −CDM. Stine parts company with Dretske at just this point. She maintains that the irrelevance of an alternative permits one to know that it doesn't obtain. Stine's idea is apparently something like this: The very fact that a possibility is remote, outlandish, or far-fetched makes it unnecessary to acquire evidence against that possibility. You can know that such a possibility isn't the case without having any evidence which excludes it.

This understanding of irrelevant alternatives allows Stine to uphold the Closure Principle. She agrees with Dretske that if you know P, you must have evidence that rules out all the relevant alternatives to P, and you thereby know that these alternatives don't obtain. But, on Stine's view, you also know that the irrelevant alternatives don't obtain, precisely because they are irrelevant (outlandish, remote, far-fetched, or whatever). You thus know the falsity of *all* alternatives to P, or equivalently, you know all the logical consequences of P. The Closure Principle is sustained.

A version of the RAT that respects the Closure Principle may be brought to bear against skepticism in two stages.[5] The first step would be to make the modified version of the RA approach plausible, presumably by an examination of clear-cut, everyday cases where the distinction between relevant and irrelevant alternatives seems to apply. The second step would be to establish that the deceiver hypothesis is an irrelevant alternative with respect to mundane propositions (at least under normal circumstances). In that event, our lack of evidence against the deceiver hypothesis wouldn't prevent us from knowing that it doesn't obtain, and that various mundane propositions are true.

A further feature of the RAT should be noted. One might maintain that the set of possibilities that are epistemically relevant with respect to a given proposition is constant in all circumstances. But virtually all defenders of the RAT hold instead that the requirements for knowledge can vary with one or more parameters. When the standards for knowledge are raised, more alternatives become relevant, and more evidence is necessary to rule them out. Positing such variations supposedly allows the RAT to account for certain epistemic phenomena, enhancing the plausibility of the RAT itself. Moreover, shifts in what counts as relevant allow the RAT to explain why skeptical arguments have some genuine force, even if they don't overthrow knowledge of the external world altogether. The basic idea is something like this: Under ordinary circumstances, the possibility of mas-

sive sensory deception is irrelevant, and our lack of evidence against that possibility is no bar to our knowing mundane propositions. However, when we engage philosophical reflection, the deceiver hypothesis may become relevant. It will then seem to us (correctly) that we don't have knowledge of the external world after all.

We now have before us the elements of the New Relevant Alternatives Theory.[6] They are: (i) There is a distinction between relevant and irrelevant alternatives. A knower must have evidence that rules out all the relevant alternatives to the proposition she knows. (ii) The Closure Principle holds. (iii) In normal circumstances, the deceiver hypothesis is an irrelevant alternative. (iv) Whether an alternative is relevant or not may be affected by shifts in context. This framework is now widely adopted, and it has been articulated in various ways by Stewart Cohen, David Lewis, and others.

In order to understand the RAT more fully, it is important to be clear about what it is opposed to. One might endorse the following principle about knowledge:

> (Underdetermination Principle) Let A be *any* alternative to P. If you lack (sufficient) evidence which counts against A, you don't know P.[7]

This principle plays a pivotal role in the skeptical argument. I believe various mundane propositions. The deceiver hypothesis is an alternative to each of these. The skeptic maintains that I have no evidence which counts against the deceiver hypothesis. *A fortiori*, I don't have sufficient evidence to know that the deceiver hypothesis is false. If the Underdetermination Principle holds, it follows that I fail to know any mundane propositions.[8]

Now, crucially, the RA theorist concedes to the skeptic that we have no evidence which counts against the deceiver hypothesis. If we did have such evidence, we could answer the skeptical argument without appeal to the RA framework.[9] Moreover, the RA theorist doesn't dispute that sometimes, perhaps often, the lack of evidence against an alternative to a proposition would keep someone from knowing that proposition.[10] The question is whether this is always so, whether the Underdetermination Principle holds in full generality, as the skeptic seems to suppose.

On the face of things, the RA theorist denies that the Underdetermination Principle applies without restriction. It is central to the RAT that you *can* know a proposition despite your lacking evidence which "rules out" or "eliminates" some alternative to that proposition. Dretske's original gloss was that you can "rule out" or "eliminate" A if and only if your evidence with respect to A is *sufficient* for you to know that A is false (1981), p. 371. Equivalently, you can rule out A if and only if you can know, on the basis of sufficient evidence, that not-A is true. The question is, what kind of evidence is sufficient for knowledge? One might adopt either a liberal view or a strict view of the matter. The *liberal* conception of evidence allows that a person can be justified in believing, and come to know, a proposition on the basis of non-entailing or inductive evidence. This view may be

unacceptable to those who hold that knowledge of a proposition requires being certain that the proposition is true. Your evidence will afford you such certainty only if it excludes any possibility of error on your part with respect to the proposition in question. In other words, your evidence has to entail that what you believe is true. Given this *strict* view, you know P on the basis of evidence only if your evidence entails P.[11]

The content of the RAT depends significantly on which conception of evidence its proponents adopt. If the RA theorist endorses the liberal view of evidence, one could rule out a proposition, i.e. know on the basis of evidence that that proposition was false, so long as one had (strong enough) inductive evidence against that proposition. The RAT is committed to the thesis that one can know that an irrelevant alternative is false even though one can't rule it out. Given the liberal view of evidence, this claim implies that, if I is an irrelevant alternative, one can know not-I despite the lack of evidence of any sort, entailing or inductive, against I.[12]

The RA theorist might adopt the strict conception of evidence instead. Given this view, you can eliminate an alternative only if your evidence entails that the alternative is false. The central claim of the RAT, that you can know P despite a lack of evidence that eliminates some alternative to P, then implies that you can know P even though you don't have evidence which entails that every alternative to P is false. This thesis is rather anodyne on its face. But the strict RA theorist holds that, so far as knowledge is concerned, evidence has no force beyond what it entails. So, given the strict conception of evidence, to say that you can know P without evidence that entails the falsity of some alternative to A is to say that you can know P without any evidence at all against some such alternative.[13]

In sum, there are really three views before us: that of the skeptic or any other partisan of the Underdetermination Principle, the liberal version of the RAT and the strict version of the RAT. They all agree that, to know some proposition P, you must *know* not-A for every A which is an alternative to P (in other words, knowledge obeys the Closure Principle). The differences among the three positions may be put as follows. First, if the Underdetermination Principle holds in full generality, you know P only if you have evidence on the basis of which you can know the falsity of every alternative to P. I will assume that this evidence may be deductive *or* inductive. So, knowledge that P requires that alternatives to P fall into one of two categories: (I) alternatives A such that your evidence entails not-A; or (II) alternatives A such that your evidence inductively supports not-A. Next, consider the liberal version of the RAT. From this standpoint, you can know an alternative is false if you have either entailing or inductive evidence against that alternative, i.e. if the alternative falls into category (I) or (II). But the liberal RA theorist recognizes an additional category (III) of alternatives that you can know to be false by virtue of their irrelevance. Whatever exactly makes an alternative irrelevant, it is something other than the alternative's evidential status. Finally, there is the strict version of the RAT. On this view, you can know an alternative

is false only if you have evidence that entails that it is or the alternative is irrelevant. In other words, for the strict RA theorist, knowing that P requires that alternatives to P fall into either category (I) or category (III).

In the remainder of this paper, I will proceed as follows. In §2, I discuss the liberal version of the RAT, with negative results. I find that, ultimately, the view has little plausibility and offers no real refuge from skepticism. §3 examines various accounts of epistemic relevance. I conclude that there is no principled way to draw the distinction between relevant and irrelevant alternatives, which is vital to both versions of the theory. Finally, in §4, I argue that the strict version of the RAT fails because it is tied to a defective account of inductive knowledge.

2. The Motivation Problem

The liberal RA theorist would have us believe that you can know a proposition P, even though you lack evidence of any sort against some (irrelevant) alternative to P. One might think that this thesis is supported by an inspection of the examples that have figured prominently in the exposition of the RAT, i.e. Fred Dretske's Zebra Case and Alvin Goldman's Barn Case.[14] Yet, I think, a careful examination of these examples doesn't support the thesis after all.

Let us first consider the Zebra Case (see above). I'll comment on it very briefly, since I've discussed it elsewhere.[15] We may agree with Dretske that you have good evidence that the animal you see is a zebra. I think you also have good reason to believe that the animal you see isn't a cleverly disguised mule. You know that zoos are supposed to exhibit genuine specimens of various types of animal, that it would take much effort for no apparent reason to display a mule disguised to look like a zebra, and so forth. In short, the total information available to you strongly supports the belief that the animal in the pen is a zebra and *not* a cleverly disguised mule. To the extent that the latter possibility is one you can and do have reasons to reject, there is no need to classify it as an irrelevant alternative. The distinction between relevant and irrelevant alternatives is idle here, so the Zebra Case gives us no motivation for adopting the RAT.

Another example which has been used to support the RAT is the Barn Case, discussed by Alvin Goldman:

> *Barn Case*. Henry sees a barn on two different occasions. The first time, things are as usual, and all the structures that look like barns really are barns. On the second occasion, though, Henry is in an area that contains numerous barn-facades. He would mistakenly take these to be barns if he were looking at them. Henry knows there is a barn before him on the first occasion, but not on the second.

I think that when we consider this example, we assume that Henry's information about barns is like our own. We have good reason to believe that we are unlikely to encounter barn-facades anywhere we go. Constructing such things

would require a large effort for no purpose that we could plausibly ascribe to people.[16] So, whenever Henry sees a barn-like structure, he is justified in believing that he isn't seeing a barn-facade. His belief remains justified even if, unbeknownst to him, it turns out that there are barn facsimiles in his immediate environment. On both occasions, then, Henry is justified in believing −F, it isn't the case that he is seeing a barn-facade.[17] In addition, I see no reason to deny that, on both occasions, Henry is justified in believing B, that there is a barn before him.

I do agree with Goldman that Henry knows B on the first occasion, but not on the second. I see things as follows: When there are no barn-facades in the area, Henry has a justified, true belief that B, and he knows that B. When there are barn-facades in the area, Henry has a justified, true belief that B, yet doesn't know B. The trouble for Henry is that he has stumbled into a Gettier case. The presence of barn-facades deprives him of knowledge, but not of justification for what he believes.

The RA theorist might analyze the example differently: In both episodes, Henry lacks evidence against an alternative to B, viz., F, that he is seeing a barn-facade. That Henry knows B the first time, but not the second, is due to a change in the relevance of F. On the first occasion, F is irrelevant. Henry doesn't have, and doesn't need, evidence against F in order to know B. On the second occasion, F becomes relevant. Henry's lack of evidence against F then precludes his knowing B. In my view, this account is mistaken. The RA theorist assumes that Henry has no evidence against F. But, as I've just said, Henry has such evidence in both episodes. Hence, whether Henry knows or doesn't know B isn't properly explained by saying that he lacks evidence against an alternative to B, and that this lack is sometimes tolerable and sometimes not.[18]

If the foregoing is correct, neither the Zebra Case nor the Barn Case provides a motivation for adopting the liberal version of the RAT. Still, it might be thought that the analysis of more complex epistemic phenomena may tell in favor of the RA approach. Here is another problem case:

> *Car Theft Case*. A few hours ago, you parked your car on a side street in a large city. You remember clearly where you left it. Do you know where your car is? We are inclined to say that you do. But hundreds of cars are stolen every day in the major cities of the United States. Do you know that your car has not been stolen and driven away from where you parked it? Many people have the intuition that you would not know that.

This example turns on a rather unusual feature of the proposition −S, that your car hasn't been stolen and driven away. −S is highly probable given your evidence, but even if −S is true, you still don't know −S. In this respect, your belief that −S resembles someone's belief that her particular ticket won't win a fair lottery. Even if it's overwhelmingly likely that a given ticket will lose the lottery, the holder of that ticket still doesn't *know* that her ticket will lose. In fact, the situation of the ticket-holder and that of the car-owner are importantly similar.

When you leave your car in a place where auto theft is common, you are, in effect, entering a lottery in which cars are picked to be stolen and driven away. Having your car stolen is the unhappy counterpart to winning the lottery. So, just as one doesn't know that one's ticket won't be chosen in the lottery, it seems that one doesn't know −S, that one's car won't be chosen and driven away by auto thieves. I call −S, and others like it, "lottery propositions". Now, the proposition C, that your car is now where you parked it, entails −S, that your car hasn't been stolen and driven away. We are inclined to say that you know C and to say that you don't know −S. But, taken together, these judgments together seem to violate the Closure Principle. Something is amiss. Do you really know that your car is now where you parked it, if you *don't* know that it hasn't been stolen and driven away?

The RAT will acquire some credibility if it can provide a satisfactory account of the Car Theft Case that preserves the Closure Principle. RA theorists typically maintain that the appearance of closure failure in this case is due to a change in which alternatives count as relevant. As we think about the example, the set of relevant alternatives somehow expands. You then need evidence against these newly relevant alternatives in order to know. More specifically, you initially have sufficient evidence to know both C and −S. But when the possibility of car theft becomes relevant, you need more or better evidence than you actually have in order to know C or −S. Hence, you know neither proposition. It's essential that both propositions are held to the same standard for knowledge at any one time. Consequently, there is no one context in which you know C and don't know −S, and the Closure Principle is respected.

Let's examine this proposal more closely. We may assume that, in the example, your evidence about the location of your car remains constant. Let's also grant that the standards for knowledge shift in some way, so that your evidence is at first sufficient, and then insufficient, for you to know where your car is.[19] If the RAT applies here, there is some alternative to what you believe (presumably S, that your car has been stolen and driven away) which is at first irrelevant, and, then, at a later point, relevant. To say that S was initially irrelevant means that you originally knew −S, despite your lack of *any* evidence which counts against S. But you have very good reason to believe S is false; after all, the chances that your car will be stolen are very small. In fact, the RAT seems quite ill-suited to deal with the sort of problem raised by the Car Theft Case and other examples involving lottery propositions. The difficulty raised by lottery propositions is that we *don't* know them, despite our *having* very strong evidence in their favor. By contrast, the distinctive thesis of the RAT is that there are propositions we *do* know, despite our *lack* of evidence in their favor.

I think the Car Theft Case highlights the need to distinguish the RAT from another view, which I'll call "Plain Contextualism":

> (Plain Contextualism) How strong evidence is required to be in order for someone to know a proposition on the basis of that evidence can change with the context of evaluation, so that one may know a proposition W on the basis of evidence E with respect to one context, but not with respect to another.

This account accommodates the Car Theft Case neatly enough. The Plain Contextualist can say that, at first, relatively relaxed standards for justification are in place, and your evidence is strong enough to allow you to know both C and −S. Later, though, the standards become more stringent, and the evidence you have is no longer sufficient for you to know either proposition.

Suppose examples like the Car Theft Case show that Plain Contextualism is right. In contexts with relaxed standards, you may know a proposition on the basis of weaker, less conclusive evidence; in more stringent contexts, knowledge of that very proposition requires stronger, better evidence. Still, unlike the RAT, Plain Contextualism as such does not provide for knowing a proposition without having *any evidence whatsoever to support it*. There is no conflict between Plain Contextualism and the Underdetermination Principle. As a result, Plain Contextualism as such is of no help with skepticism, if the skeptic is correct that we have no evidence of any sort for believing that we're not the victims of massive sensory deception. It's no use to be told that the price of getting out of skepticism may sometimes go quite low, if in fact your pockets are completely empty.[20]

3. The Problem of Relevance

I have tried to show that there is little motivation of the sort usually claimed for endorsing the liberal version of the RAT. It remains to be seen whether a better case could be made on behalf of the strict version (see §4, below). But the RAT in either form is tenable only if there is a satisfactory notion of epistemic relevance that can do the work required of it.[21] I don't think that there is. Let's examine some leading proposals.

Stewart Cohen has entertained the suggestion that relevance is to be understood in probabilistic terms.[22] I'll use the Car Theft Case for purposes of illustration. The idea is that the probability of your car's being stolen is some low number M. Ordinarily, the possibility of car theft is so improbable as to be epistemically insignificant, and you do know where your car is. In these circumstances, the threshold for relevance is some probability greater than M. Later, however, we enter into a more scrupulous frame of mind, and the threshold for relevance goes below M. Even the small chance that you are wrong about where your car is because it has been stolen is enough to deprive you knowledge.

This probabilistic criterion of relevance seems attractive, but it leads to trouble if knowledge requires having evidence that excludes relevant alternatives. Suppose you know a proposition D. Let E be an alternative probable enough to be relevant to D, and let F be any other alternative to D which should count as *ir*relevant. Consider the disjunction (E v F), which is logically incompatible with D. This disjunction is at least as probable as its disjunct E, so it is probable enough to be relevant with respect to your knowing D. Now, since (E v F) is relevant with respect to your knowing D, you need to have good evidence against it. That is to say, you need to have good evidence for the negation of (E v F), namely the conjunction (−E & −F). Why is this a problem? If you have good evidence for (−E & −F), you presumably have good evidence for −F *alone*.[23] Thus, your

having good evidence for −F is a condition for your knowing D. So, F *isn't* irrelevant to your knowing D, contrary to what we originally supposed. Contradiction threatens.

Cohen also proposes that epistemic relevance may be a matter of something other than probability, namely the *salience* of an alternative. He writes: "In cases where we normally attribute knowledge...the chance of error is not salient. Here, there are no relevant alternatives" (1988), p. 107. David Lewis concurs with Cohen on this point:

> Our final rule is the *Rule of Attention*...When we say that a possibility *is* properly ignored, we mean exactly that; we do not mean that it could have properly been ignored. Accordingly, a possibility not ignored at all is *ipso facto* not properly ignored. What is and what is not being ignored is a feature of the particular conversational context. No matter how far-fetched a certain possibility may be...if in *this* context we are not in fact ignoring it but attending to it, then for us now it is a relevant alternative. (1996), p. 599.

If relevance is a matter of salience, then the situation in the Car Theft Case becomes relatively transparent. We usually forget or ignore the possibility that our cars have been stolen, and, accordingly, we take ourselves to know where our cars are. However, when we begin to dwell on the possibility of car theft, that possibility becomes salient and our knowledge is compromised. The RA theorist says that the salience we give to the possibility of car theft makes it relevant. This possibility is an alternative both to C, my car is where I parked it, and to −S, my car hasn't been stolen and driven away. Since we can't rule the possibility out, we don't know C or −S.

From the standpoint of the RAT, the view that salience determines relevance has a further attractive feature. If correct, it would give us a principled account of why the deceiver hypothesis is usually irrelevant and doesn't impair our knowledge of mundane propositions. Quite simply, we don't ordinarily think about the deceiver hypothesis; it is salient to us only in our philosophical moments. As a result, the deceiver hypothesis is normally irrelevant, and our inability to eliminate it leaves our knowledge of mundane propositions intact.

The salience criterion of relevance is very powerful. It implies that one doesn't know whenever one vividly entertains some alternative to what one believes. In fact, it's *too* powerful, as the following examples indicate:

> *Night Watchman Case*. Between the close of business Thursday afternoon and the opening of the bank on Friday morning, someone took the money out of the vault. No force was used, so the burglar must have dialed the correct combination. Only two people know the combination, namely the President and the Treasurer of the bank. At the time of the robbery, the President was in the hospital undergoing surgery, and the Treasurer has been charged with the crime. The prosecution presents these facts and asks the jury to convict the

> Treasurer. The defense responds that the night watchman passed the vault on his rounds, and he could have dialed the combination by sheer luck, opened the vault, and taken the money. We should imagine that the odds against the watchman dialing the right combination are astronomical.

I think we know that the night watchman didn't happen to guess the combination and open the vault. That possibility has been vividly described to us, and should count as relevant by the salience criterion. Then, assuming that we can't rule out this possibility, we should fail to know that the night watchman didn't open the vault. But that's not correct; we do know that the night watchman didn't open the vault.[24] So, salience can't be a sufficient criterion of relevance.[25]

Here is another example in the same vein:

> *Hole-In-One Case*. Sixty golfers are entered in the Wealth and Privilege Invitational Tournament. The course has a short but difficult hole, known as the "Heartbreaker". Before the round begins, you think to yourself that, surely, not all sixty players will get a hole-in-one on the "Heartbreaker".

Don't you know that not *all* sixty players will get a hole-in-one? Again, the salience criterion seems to go wrong. You contemplate the possibility, so it should become relevant. Then, assuming you can't rule it out, you should fail to know that not all sixty players will get a hole-in-one. But you do know that, and the salience criterion seems to distort what knowledge requires.

Let us now turn to David Lewis's account of epistemic relevance.[26] As we have seen, Lewis agrees with Cohen that an alternative will become relevant if it is salient in a given context. This criterion is unacceptable, for the reasons I have just canvassed.[27] But Lewis also offers a further proposal: An alternative is relevant if resembles actuality in an appropriate way.[28]

This suggestion would explain why you fail to know that your lottery ticket will lose, despite the fact that your justification for thinking so is very strong (or, at least, despite the fact that the odds of your losing are very high). In a lottery situation, it is simply a matter of happenstance whether one number is selected rather than some other. A possible world in which Number N is drawn is not very unlike a world in which Number M is drawn. Suppose you hold Number N, but Number M is actually drawn. Since a possible world in which your ticket is the winner closely resembles the actual world, the possibility that your ticket wins counts as relevant by the resemblance criterion. So, in order to know that your ticket doesn't win, you would need to eliminate the alternative that Number N won't be drawn. But, according to Lewis, you can't eliminate that alternative, and you don't know that your ticket will lose.[29] A parallel treatment would apply to the Car Theft Case. Since cars like mine get stolen all the time, a possible world in which my car is stolen significantly resembles the actual world. The resemblance between this possibility and the actual world makes it a relevant alterna-

tive to my belief that my car is now where I parked it. Insofar as I am unable to eliminate that alternative, I don't know that my car is now where I parked it.

Like the salience criterion, the resemblance criterion of relevance has direct anti-skeptical implications. Assuming that you are not actually a brain-in-a-vat, it would turn out that a possible world in which you were one, and most of your beliefs were false, would be very different from the actual world. That is, the possibility the skeptic raises doesn't resemble actuality much at all, and so isn't relevant by the resemblance criterion. Your inability to rule out the skeptical possibility therefore doesn't compromise your knowledge of mundane propositions, at least so far as the resemblance criterion is concerned.

However, the resemblance criterion of relevance, as I have just presented it, is defective. It yields the result that you don't know that you will lose the lottery and that you don't know that your car is where you parked it. The trouble is that you also fail to know much else besides. Much of what we believe about the world beyond our immediate environments could be made false by some chance event we haven't yet heard of. In other words, our beliefs entail lottery propositions to the effect that the chance event hasn't occurred. For example, I believe that Henry Hyde is a prominent member of the House of Representatives. This proposition entails that Mr. Hyde hasn't suffered a fatal heart attack in the last five minutes. I believe that, as I write, there is an amusement park in California called "Disneyland". This proposition entails that Disneyland hasn't been destroyed a little while ago by a terrible fire. The problem facing the RA theorist is that chance occurrences like these must count as relevant alternatives to what we believe, given the way the resemblance criterion of relevance applies to genuine lotteries and to the Car Theft Case. Then, if we lack evidence which rules out these alternatives—as we do with genuine lotteries and the Car Theft Case—we will know little about the world beyond our immediate environments. This "semi-skepticism" is not so far-reaching as full Cartesian skepticism, but it is unpalatable just the same. In short, a straightforward application of the resemblance criterion of relevance trades one kind of skepticism for another that is almost as bad.[30]

Lewis, however, qualifies the resemblance criterion in an important way. If an alternative is relevant by Lewis's "Rule of Resemblance", it must *saliently* resemble actuality.[31] We can appreciate the force of this added condition by noting first of all that everything resembles everything else in some way or other. We don't want to say that every alternative is always relevant, so there must be some restriction on the kind(s) of resemblance that make for epistemic relevance. Thus, an epistemically relevant alternative has to be one that one that resembles actuality in *the right way*.

Lewis means at least this much, but he also means more. Like Cohen, he is committed to the view that, in the Car Theft Case, there is a shift in what alternatives count as relevant. That is why, given a certain context, you do know where your car is, despite the fact that, given another context, you don't know the

very same thing. But whether a possible world resembles actuality in any particular respect is a context-independent fact. How, then, does the shift in relevance occur? If the dimension of resemblance that is epistemically significant can vary with context, so, too, may the relevance of a particular alternative. For Lewis, then, an alternative saliently resembles actuality only if that alternative resembles actuality *in a way that is salient in a given context*.[32]

It is now apparent (at least in outline) how Lewis's full account will apply to the Car Theft Case. In a certain context, the *likeness* between my car's being stolen and other cars' being stolen is emphasized. My car's being stolen does saliently resemble actuality, and counts as a relevant alternative to both "My car is where I parked it" and "My car hasn't been stolen". Under these conditions, I fail to know either proposition. However, an alternative in which my car has been stolen is *unlike* actuality in another way, namely with respect to whether I have a car or not. If this difference between the two situations, rather than their similarity, is salient in a particular context, then I do know where my car is in that context.[33] The point generalizes to all similar cases, and keeps us from falling into semi-skepticism. In ordinary contexts, the resemblances that would defeat our knowledge of lottery propositions (and the propositions that entail them) aren't salient. Thus, our knowledge of the world remains intact.

This outcome seems like a happy one. Yet, there is a serious difficulty if one insists that relevant alternatives must saliently resemble actuality. Consider another example:

> *Aspirin Case*. You go to the drugstore to buy a bottle of aspirin. There are a number of bottles on the shelf labelled "Aspirin". You take one, and it contains aspirin. However, due to an as yet undiscovered mishap at the manufacturing plant, some of the bottles marked "Aspirin" have been filled with acetaminophen instead. In fact, one of the bottles on your drugstore's shelf contains the wrong medicine.

It seems to me that you don't know that the bottle you've taken has aspirin in it. So, the possibility that you've taken a bottle containing acetaminophen instead of aspirin must be relevant here, i.e. saliently similar to actuality. However, the similarity between that possibility and actuality isn't salient at all, since neither you nor anyone else has any idea that there are mis-labelled bottles on the shelf. Or, putting the same point a little differently, whether you know the bottle contains aspirin doesn't vary with context, as salience is supposed to do.[34]

It appears that Lewis's approach to our knowledge of lottery propositions is pulled in two different directions. If the criterion of relevance is salient resemblance, we get (some) pleasing results in the Car Theft Case, but things go awry in the Aspirin Case. Alternatively, we could say that a lottery set-up generates possibilities that resemble actuality, and that this resemblance is sufficient to make an alternative relevant—regardless of whether that resemblance happens to

be salient or not. Adopting this view makes the Aspirin Case come out properly, but doesn't permit Lewis to handle the Car Theft Case as he would like.[35] Worse still, this account of epistemic relevance seems to lead to semi-skepticism.

To sum up: The success of the RA approach depends upon there being a principled distinction between relevant and irrelevant alternatives. I have considered some prominent proposals as to how that distinction is to be drawn. In the end, however, no satisfactory account of epistemic relevance has come to light.

4. The Problem of Inductive Knowledge

In §2, I criticized the liberal version of the RAT, according to which you can rule out an alternative if you have good inductive evidence against it. But proponents of the RAT have generally adopted the strict conception of evidence, and the attendant conception of what it is to rule out an alternative. Dretske, for instance, says that to eliminate an alternative means assigning it a probability of 0 (1981), p. 364. Lewis makes it clear that ruling out an alternative means possessing evidence which entails that the alternative is false (1996), p. 553.[36]

Now, when you know a proposition W by induction, you don't have evidence that entails the falsity of all the alternatives to W. In fact, the falsity of any consistent alternative which implies (E & not-W), where E is your evidence, isn't entailed by the evidence you have. How, then, can someone who adopts the strict conception of evidence provide for inductive knowledge? The RA theorist will say that your evidence does rule out some alternatives to W by entailing their negations. If these include all the *relevant* alternatives to W, you do know W. Any alternative to W whose falsity isn't entailed by your evidence is irrelevant, and your not being able to rule it out doesn't prevent you from knowing W. So, given the strict conception of evidence, inductive knowledge is possible only if some alternatives need to be excluded by evidence and others don't, i.e. only if there is an operative distinction between relevant and irrelevant alternatives. The motivation for recognizing such a distinction is as pervasive as the presence of inductive knowledge itself.[37]

Of course, it becomes a pressing question whether we can and should understand inductive knowledge in terms of a subject's possessing entailing evidence against relevant alternatives. For this project to succeed, the distinction between relevant and irrelevant alternatives must reflect the difference between inductive practices that, intuitively, do give rise to knowledge and those that don't. An unsatisfactory way to achieve this goal is to adopt what I will call the "Backsliding Account":

> *Backsliding Account.* Suppose A is an alternative to W, and a subject has evidence E which doesn't entail −A. (Irrelevance Clause) If E provides strong inductive support for not-A, then A is irrelevant. (Relevance Clause) If E doesn't provide strong inductive support for not-A, then A is relevant.

One thing not to like here is that the Backsliding Account makes the relevance of an alternative depend upon its evidential status. This seems contrary to the spirit of the RAT. After all, the point of the RAT seemed to be that knowledge can derive from non-evidential considerations (insofar as these make an alternative irrelevant), not just from evidential ones.

There are more serious difficulties with the Backsliding Account. To see these, it may help to recall the division of alternatives introduced in §1, above: (I) alternatives A such that your evidence entails not-A; (II) alternatives A such that your evidence inductively supports not-A; (III) alternatives that you can know to be false by virtue of their irrelevance. The strict version of the RAT is meant to differ from the liberal version by requiring alternatives to a known proposition to fall into (I) or (III), but not (II). However, the Irrelevance Clause has the effect of re-instating category (II) and simply relabeling it. That is, adopting the Irrelevance Clause turns the strict version of the RAT into the liberal version. Given the difficulties faced by the latter (see §2), this is an unappealing direction to take. The Relevance clause makes matters even worse. Let A be any alternative to W, such that you have neither entailing nor inductive evidence against A. Since you have no inductive evidence against A, A is relevant. Moreover, according to the terms of the strict RAT, you can't eliminate A, because you don't have entailing evidence against A, either. Hence, you don't know W. In other words, you fail to know W so long as there is any alternative A, such that you have neither entailing nor inductive evidence against A. But to say this is to endorse the Underdetermination Principle in its full generality, and, thus, to abandon the RA approach altogether.[38]

Clearly, the Backsliding Account has serious liabilities, and the strict RA theorist's treatment of inductive knowledge must rely on some other criterion of relevance. For purposes of discussion, I will assume that the epistemic relevance of an alternative is in some sense a matter of resemblance between the alternative and the way things actually are. The intuitive appeal of the RAT lies in the notion that some possibilities of error are too far-fetched or remote to worry about or take seriously. Such possibilities, presumably, diverge sharply from the way things actually are. So, I want to say, *if* the strict version of the RAT is to give us an adequate account of inductive knowledge, the evidence that underwrites such knowledge should count against possibilities that resemble actuality, rather than against possibilities that do not.[39]

How, then, would the RAT provide for inductive knowledge? Let's take a stock example. Margaret examines a large number of emeralds, and observes their color. After she has examined a sufficient sample, say a thousand emeralds, she comes to know G, that all emeralds are green. Margaret's evidence doesn't entail that there are no non-green emeralds. In that sense, she can't rule out the alternative Y, that the next emerald she sees will be yellow. Within the framework of the RAT, Margaret can know that all emeralds are green only if Y is an irrelevant alternative to G. The claim that Y is an irrelevant alternative may seem

plausible, insofar as a possible world in which there were yellow emeralds would be significantly different from the actual world.

But now suppose that Margaret has looked at only one or two emeralds and found them to be green. Nevertheless, she leaps to the conclusion G, that all emeralds are green. It would be incorrect to say that she knows G. The RA theorist will have to say that there is some relevant alternative to G that Margaret hasn't ruled out. We might think that Margaret has done little to assure herself that emeralds don't come in different colors, for example some green and some yellow. Imagine a world in which that is the case. If yellow emeralds were plentiful, the third, fourth, or tenth emerald Margaret encounters might be yellow. So, there is a *relevant* alternative to G, one Margaret must rule out, e.g. Y′, that the third emerald she encounters is yellow. When Margaret has observed only one or two emeralds, she hasn't excluded that alternative. Her evidence, at best, is that the first and second emeralds are green, which doesn't entail that the third emerald isn't yellow. Since Y′ is a relevant alternative to G that Margaret hasn't ruled out, she doesn't know G. The RA theorist has the result she wants.

Things are starting to fray, however. The initial thought was that Y is an irrelevant alternative, because possible worlds containing yellow emeralds are dissimilar from the actual world. But Y′, like Y, is a situation in which there are yellow emeralds. Y′ and Y diverge from the actual world in the same way. So, how can Y′ be a relevant alternative, as required, if Y isn't? In other words, how does the RA theorist account for the fact that Margaret can't know G by observing one or two emeralds, but she can know G by observing a great many?

Perhaps the best recourse at this point is to distinguish two different ways yellow emeralds might be distributed among emeralds in general. A "benign" distribution is one in which either emeralds are completely uniform in color or exceptions are sufficiently plentiful to show up early in an inspection of emeralds. A "perverse" distribution is one in which the first exception appears only after an extensive examination of emeralds. In the actual world, the color of emeralds is benignly distributed, and the same is true of Y′. So, the RA theorist might claim that Y′ resembles the actual world by containing a benign distribution of emerald color. Hence, Y′ is a relevant alternative to G, and it's necessary to do a sufficient number of observations to rule out Y′. Y, though, is a situation in which the distribution of emerald color is perverse. In this respect, Y is unlike the actual world, and Y is, therefore, an irrelevant alternative to G. The irrelevance of Y means that Margaret's inability to rule it out after many observations doesn't preclude her knowing G. Thus, the RA theorist can arrive at the desired result: Margaret is in a position to know G after many observations of green emeralds, but not after a few.

Still, I wouldn't imagine that the RA theorist will be very comfortable with such an account. It's not at all clear why a world in which Y′ is true and yellow emeralds are *plentiful* is more like actuality than a world in which Y is true and yellow emeralds are rare. So, it's by no means clear why Y′, rather than Y, should be regarded as a relevant alternative to G. Moreover, while nature is often benign,

it isn't always so. For example, the distribution of swan color is notoriously perverse. A perverse distribution of emerald color is not, perhaps, such a radical departure from actuality after all. By saying this, I don't mean to deny that one can come to know that all emeralds are green by observing a suitable sample of green emeralds. What seems questionable to me is whether this fact can be understood in terms of the possession of entailing evidence against some possibilities and the resemblance among possible worlds, as the RAT requires.

Inductive knowledge raises another difficulty for the RAT. Generally, inductive support is defeasible.[40] Let's suppose that, other things being equal, a sufficient number of observed green emeralds rules out all relevant alternatives to G. That is, all relevant alternatives in which some emeralds are yellow are ruled out by the observational evidence. Imagine that an eminent gem collector tells Margaret that he has heard a rumor that someone has discovered a yellow emerald. If he can verify its existence, he will put a green emerald in her mailbox. Margaret observes the requisite number of green emeralds, although one of these is a green emerald in her mailbox. Suppose, though, that all emeralds are really green; the gem collector was attempting to mislead Margaret. Under these circumstances, Margaret doesn't know that all emeralds are green, even if she should happen to believe it.

The RA theorist will have to say that there is some relevant alternative to G that Margaret has failed to rule out, viz., that there is a yellow emerald the gem collector has seen and she hasn't. Given that Margaret has observed a sufficient number of green emeralds, this alternative should be irrelevant. Why does it become relevant if the gem collector tells Margaret certain things? One might like to reply that, given what the gem collector has told Margaret, her total evidence doesn't provide strong inductive support for "There are no yellow emeralds", and, therefore, "There are yellow emeralds" is a relevant alternative to G. But this response would take the RA theorist to the verge of the Backsliding Account described above. On the other hand, it isn't easy to see what better solution, if any, is available.

There is a third objection to the RA account of induction. Margaret knows G, that all emeralds are green. Consider the possibility U, that there is some yellow emerald no one has observed or will observe. U is an alternative to G, but no one has evidence that entails the falsity of U. So, unless U is an irrelevant alternative to G, no one, including Margaret, can know G. Since Margaret does know G, we must suppose that U is so unlike actuality that it is irrelevant. Now, we have imagined that Margaret is a diligent observer of minerals. But suppose that her rash friend Annie just assumes, without making any observations at all, that there are no unobserved yellow emeralds, i.e. not-U. It would seem that if Margaret can know $-$U without evidence, so, too, can Annie. To that extent, the RAT appears to go wrong. Surely, Annie couldn't really know that there are no unobserved yellow emeralds without doing anything to find out about what color emeralds are. More generally, if the RAT allows for detailed empirical knowledge without evidence, then anyone who happens to arrive at the appropriate belief, no matter

how, will enjoy that knowledge. This outcome is wrong; knowledge is dearer than that.[41]

Unlike the liberal version of the RAT, the strict version seems to identify a purpose that the distinction between relevant and irrelevant alternatives can and must serve. This distinction is supposed to explain how the strict conception of evidence can be reconciled with knowledge by induction. But, as I have tried to show, such an approach is fundamentally mis-conceived, and the strict RAT can't be sustained.

5. Conclusion

An approach to various issues in epistemology has recently emerged, which I called the New Relevant Alternatives Theory. I have argued that this view is burdened by serious shortcomings. The liberal version of the RAT lacks motivation, there is no satisfactory account of epistemic relevance in sight, and the strict version of the RAT leads to an unacceptable view of inductive knowledge. As I see it, the RAT may be an idea whose time has come, and gone.

Appendix: Lewis on Induction and Underdetermination

I have included David Lewis among those whom I describe as advocates of the New RAT. In particular, the views about induction I discuss in §4 above have some affinities with Lewis's, but there are important differences as well. In fairness to Lewis and to the reader, I will say a bit more about the position Lewis does hold. His views on these topics are rich and subtle, and my remarks should be taken as exploratory rather than final.

The upshot of §4 was that inductive knowledge can't be analyzed in terms of the possession of entailing evidence against alternatives that are relevant insofar as they resemble actuality. As I noted, Lewis does hold that (salient) resemblance to actuality makes an alternative relevant. But in discussing induction, Lewis's "Rules of Method" are germane:

> We are entitled to presuppose—again, very defeasibly—that a sample is representative...That is, we are entitled properly to ignore possible failures in-...standard methods of non-deductive inference. (1996), p. 558.

Presumably, we can't assume that *all* samples are representative. But when the number of cases examined is large and sufficiently varied, then the possibility of, say, unobserved exceptions to a generalization does count as irrelevant. Put in such terms, this "Rule of Method" seems like a version of what I earlier called the Irrelevance Clause of the "Backsliding Account". I indicated above why such a proposal gives me pause.

Induction, for Lewis, might also involve the "Rule of Belief":

> A possibility that the subject believes to obtain is not properly ignored, whether or not he is right so to believe. Neither is one he ought to believe to obtain—one that evidence and arguments justify him in believing—whether or not he does so believe. (1996), p. 555.

Lewis notes that beliefs come in degrees, and that this fact needs to enter into the way the Rule of Belief is supposed to operate.

The Rule of Belief could apply in at least some of the cases I discussed in §4. For instance, I said that Margaret didn't know that all emeralds are green when the deceitful gem collector placed a green emerald in her mailbox, signalling falsely that he had found a yellow emerald. The Rule of Belief might apply as follows: Given what Margaret was told by the gem collector, she *ought* to believe that there is a yellow emerald the collector has discovered. This possibility is then relevant according to the Rule of Belief. Since Margaret has no evidence which eliminates this possibility, she doesn't know that all emeralds are green. Thus, the Rule of Belief gives Lewis the desired result. I would raise the same doubts about this way of incorporating inductive confirmation into the RAT that I've brought up before. It seems like Margaret ought to believe that the gem collector has found a yellow emerald because she has good inductive evidence to that effect. That is, relevance under the Rule of Belief is determined by ordinary inductive considerations, and again we seem to be left with a something like the Backsliding Account.

The ultimate worry I raised concerning the Backsliding Account was that it might commit the RA theorist to the unrestricted Underdetermination Principle, vitiating the RA approach altogether. How, then, does Lewis's theory treat underdetermination? Assume you know W, where W isn't entailed by your evidence. There is, then, some alternative A consistent with your evidence which you are therefore unable to eliminate. Let us assume for purposes of discussion that A is the only alternative to W. According to Lewis, if you know W, A must be irrelevant. A must be such that you can "properly ignore" it. Now, suppose your evidence is neutral between W and A. Apparently, then, you *ought* to assign a probability of 1/2 to both W and A, whether you actually do or not. To that extent, A isn't a possibility you may properly ignore, according to the Rule of Belief. Since, by hypothesis, you lack evidence that eliminates A, you don't know W. It would appear that, for Lewis, underdetermination is always inimical to knowledge.

We might put this point by saying that if you know W, and A is an alternative to W, you must have some justification for rejecting A.[42] But Lewis doesn't agree: "I allow knowledge without justification, in the cases of face recognition and chicken sexing" (1996), p. 556. I'll leave matters having to do with poultry to one side. Instead, suppose I recognize Bruce by face. When I see him, I give high probability to "It's Bruce" and low probability to its contraries. But by the Rule of

Belief, my knowing that it's Bruce requires that I *shouldn't* give high probability to "It's not Bruce". That I don't, *in fact*, give high probability to "It's not Bruce" doesn't mean that I ought not to do so.

In the abstract, it seems that I would be doing what I ought to do, and satisfy the Rule of Belief, if either one of two conditions were met: (1) My information could justify my giving "It's not Bruce" a low degree of credence. As we saw, Lewis rejects this suggestion for the present case. (2) The evidence I have must be utterly silent about whether I have encountered Bruce, and my lack of evidence one way or another is for some reason *not* reflected in the probability I ought to assign to "It's Bruce" or "It's not Bruce". How, though, does such a case differ from one where the neutrality of one's evidence underdetermines what one ought to believe, and thereby does preclude knowledge? Lewis doesn't say.

The same point applies to Lewis's treatment of skeptical hypotheses. If there is some reason to assign the deceiver hypothesis a low probability, then I can reject that hypothesis, and nothing more needs to be done to quell the kind of skepticism that trades on the Underdetermination Principle. In particular, it would be superfluous to go on to add some further account of why the alternative raised by the skeptic is irrelevant. But if there isn't good reason to assign the deceiver hypothesis a low probability, shouldn't I assign it at least a middling probability, so that it is relevant according to the Rule of Belief? Or, if not, why not?

In short: Lewis, like other RA theorists, must acknowledge that underdetermination precludes knowledge in many ordinary situations. At the same time, he must hold that knowledge is sometimes possible despite underdetermination, if he is to fend off the skeptic. Lewis's version of the RAT may provide a principled way of achieving this result, but, if so, I haven't grasped it.[43]

Notes

1. The ideas behind the relevant alternatives approach go back earlier. It's possible to read J. L. Austin as putting forward a prototype of the RAT; see Stine (1976). And, perhaps, Hume may have had something like the distinction between relevant and irrelevant alternatives in mind at various points in the *Treatise*.
2. I use the term "mundane proposition" to refer to those propositions about the external world we ordinarily credit ourselves with knowing, e.g. 'I have a hand', 'There are cats', and so forth. The possibility of massive sensory deception arises insofar as your life may have been an extended dream, or you are a brain-in-a-vat whose sensory inputs are manipulated by experimenters. The suggestion that such is the case is what I call the "deceiver hypothesis".
3. Certainly, the principle that knowledge is closed under logical implication is too strong. A person can know a proposition without knowing all the logical consequences of that proposition. It's more plausible to claim that knowledge is closed under *known* logical implication, although problems with the formulation remain. However, nothing I have to say on this occasion will be affected by these considerations, so it should do no harm to employ the simpler version of the Closure Principle set out in the text.
4. See Vogel (1987) and Vogel (1990a).

5. As I said above, Dretske used to the relevant alternatives framework to explain failures of the Closure Principle, supporting his rejection of Step (1) of the skeptic's argument. Proponents of *New* Relevant Alternatives Theory accept the Closure Principle, so they contest Step (2) of the argument, instead of Step (1).
6. From now on, I will be discussing only the New Theory. When I refer to the RAT and to RA theorists, I will mean the New Theory and its proponents.
7. I use the term "evidence" very broadly here. I mean it to cover any epistemic reason one might have for holding a belief. For example, suppose that the doctrine of methodological conservatism is sound. Then, the fact that a person believes a proposition gives the person a reason to believe it. That person would have evidence for the proposition, in my extended use of "evidence". I also mean to allow the possibility that there could be a legitimate epistemic principle which licenses the direct acceptance or rejection of a particular proposition, e.g. "One may reject the possibility that one is a brain in a vat". If such a principle were correct, I would again say that a person has evidence for rejecting the proposition in question. When I speak of "inductive evidence" for a belief, I mean evidence in this extended sense that doesn't entail the truth of what one believes. And, in my terminology, a person is justified in believing a proposition just in case her belief is supported by good evidence.
8. This way of describing the skeptical argument makes no explicit reference to the Closure Principle, and seems to depend on the Underdetermination Principle instead. Whether these formulations of the argument are really distinct, and what the relation between the two principles may be, is not a matter I will pursue here. See, however, Vogel (in preparation).
9. I suppose there could be good news, namely, that we do have some evidence against the deceiver hypothesis, along with bad news, namely, that the evidence we have isn't strong enough for knowledge. Then, more might need to be done to answer the skeptic. I won't consider this possibility further, since the primary difficulty confronting us seems to be identifying any evidence at all that counts against the deceiver hypothesis.
10. When A is an alternative to P, and a person lacks (sufficient) evidence against A, I will say that the person's choice between P and A is "underdetermined". According to the RAT, underdetermination is incompatible with knowledge, so long as the alternative involved is a relevant one.
11. It is widely thought that skepticism arises as a philosophical problem only if one assumes that knowledge requires certainty. That is, the skeptic is committed to the strict view of evidence, and the reason we fail to know that the deceiver hypothesis is false is that we have no evidence which *entails* that this is so. But an argument conducted on these terms can be blocked if one denies that knowledge requires certainty in the first place, and such a response to skepticism is quite familiar. In any event, the skeptic can formulate the deceiver argument without endorsing the strict conception of evidence. She can maintain that we have no evidence of any sort which counts against the deceiver hypothesis. That's why we don't know that the deceiver hypothesis is false, and why, in turn, we don't know that any mundane propositions are true.
12. To be more precise, the liberal version of the RAT says only that it is possible to know a proposition without evidence for that proposition which meets the standards for knowledge. The RA theorist might still require that you have *some* minimal evidence against irrelevant alternatives in order to know that they are false. However, holding onto this scruple will make it more difficult, if not impossible, for the RA theorist to resist skepticism.

13. The strict RA theorist might be said to accept fallibilism with respect to knowledge (you can know propositions for which you don't have entailing evidence) but to reject fallibilism with respect to evidence (you can't know a proposition on the basis of evidence, if your evidence doesn't entail the truth of that proposition).
14. For the former, see Fred Dretske (1970) and for the latter see Alvin Goldman (1975); see also Stine (1976) and other authors. It's not clear whether Dretske or Goldman wants to draw exactly this conclusion from their examples.
15. See Vogel (1990a).
16. This isn't an a priori claim about what persons have reasons to do. It's an empirical claim based on our knowledge of what people do in their course of their lives. So, it doesn't immediately carry over to a justified belief that conducting a brain-in-a-vat experiment would be great effort for no apparent purpose, on the basis of which we can reject the deceiver hypothesis. This is a somewhat delicate point, though. See Vogel (1990b), p. 660–662.
17. Goldman indicates that Henry doesn't know that there are barn-facades around him in the second version, and that Henry's justification is the same in both cases (1975), p. 122.
18. Of course, in the second episode, if Henry had checked the structure and determined that it wasn't a barn-facade, he would know that it is a barn. One might then say that Henry doesn't have sufficient evidence to know that what he sees is a barn. I think this way of describing things is misleading; it washes out the intuitively robust distinction between Gettier cases and failures to know because one lacks good reasons for what one believes. In any case, the Barn Example isn't one in which a person confronts two hypotheses, B and F, and, without *any* evidence against F, comes to know B because F is an irrelevant alternative. That is the sort of case one needs to find in order to motivate a version of the RAT that can be put to use against the skeptic.
19. I make this assumption for purposes of discussion only. It's essential to the account under consideration that, in some sense or from some standpoint, you do know that your car hasn't been stolen (and similarly that you know you will lose the lottery). This seems wrong to me, and the intuition that it's wrong is what makes it very hard to give an adequate treatment of the Car Theft Case and others like it.
20. Although I think Cohen can profitably be read as one of the major architects of the RAT, the view he advocates now may be better described as a version of Plain Contextualism. Cohen is aware that Plain Contextualism by itself is no answer to skepticism, and he attempts to fill this lacuna. See his (1988) and (1999), and, for a dissent, see my (1993).
21. Hence, in this section, I try to be non-committal about whether the liberal conception or the strict conception of evidence is in force.
22. "This suggests that a criterion of relevance is something like probability conditional on S's evidence and certain features of the evidence" (1988), p. 95. Cohen attributes a similar view to Dretske, Goldman, Harman, and Swain.
23. This is straightforward on the strict version of the RAT. If you can eliminate (E v F), your evidence entails the falsity of (E v F), and your evidence entails the falsity of F. In any event, to balk at this point would be to deny that justification is closed under (known) logical implication, and the liberal RA theorist may well be reluctant assume that burden. I am indebted here to Michael Roth.
24. As it happens, such cases present a problem for Keith De Rose's version of the RAT, as they did for Robert Nozick's original account of knowledge, which De Rose's follows very closely. Take the Hole-In-One-Case. If what you believe (viz., that not all

sixty players will make a hole-in-one) were false, you would still believe it by the very same method (viz., by reflecting on the sheer unlikelihood of it happening). So, by De Rose's account, you fail to be "sensitive" to the truth and fail to know (1995), p. 18. On this point, see Vogel, (1987), p. 212–213.

25. Lewis describes a case like this one involving a jury (1996), p. 560. His intuition is that what we know in such a situation isn't a settled matter. I don't think I have the complicated reactions and hesitations Lewis's account would call for. Also, I'm not sure how Lewis's discussion of the jury's misgivings about far-fetched possibilities, described on p. 560, squares with his remarks on the same topic at p. 556. Matters may be even more clear-cut in the Hole-In-One-Case, discussed below; see also the example of the veteran and the rookie policeman, in Vogel, (1987).
26. I need to alert the reader that my presentation simplifies Lewis's views in various respects. For one thing, I don't address Lewis's contention that rules of relevance and irrelevance (what is and isn't "properly ignored") are defeasible. So, I'm not sure whether the criticisms I raise here do finally bear on the position Lewis actually defends.
27. Following a suggestion by Lewis, the RA theorist might try to say that the normal standard-raising mechanisms are somehow resisted in these cases. Hence, the jury knows that the Treasurer took the money, not the night watchman. See Lewis (1996), p. 560. A great deal more explaining is needed for this saving maneuver to work. For example, why don't the standards for knowledge rise in these cases, if they can be elevated when skeptical hypotheses are brought up?
28. This isn't Lewis's full view; he requires that relevant alternatives *saliently* resemble actuality. See below.
29. "It is the Rule of Resemblance that explains why you do not know that you will lose the lottery, no matter what the odds are against you and no matter how sure you should therefore be that you will lose. For every ticket, there is the possibility that it will win. These possibilities are saliently similar to one another; so either everyone of them may be properly ignored, or else none may." (1996), p. 557.
30. There is an oddity here. A world in which any particular, relatively local fact was different from the actual world due to a chance event would resemble actuality and count as relevant. A world in which many fires, meteor strikes, and the like occurred at once would be very different from the actual world, and would therefore be irrelevant. The upshot seems to be that you can know that the world is as you take it to be in almost all respects, but you can't know any particular, relatively local fact about it. For more on semi-skepticism, see Vogel (1990a).
31. I have simplified here. The Rule of Resemblance is: "Suppose one possibility saliently resembles another. Then if one of them may not be properly ignored [i.e. if it's relevant], neither may the other. (Or rather, we should say that if one of them may not be properly ignored *in virtue of rules other than this rule*, then neither may the other)" (1996), p. 556. According to Lewis, there is also the Rule of Actuality, according to which actuality is, in effect, always relevant (1996), p. 554. Hence, salient resemblance to the actual world is a sufficient condition for epistemic relevance.
32. If I understand Lewis properly, whether resemblance of a certain kind is salient in a context has to do with what matters to people or what is on their mind in some way. See Lewis (1996), p. 565–6.
33. Lewis doesn't discuss the Car Theft Case as such. Instead, he analyzes the example of "Poor Bill", who squanders his money gambling. According to Lewis, we may know that Bill will be never be rich, i.e. that he will never win the lottery. We know this fact insofar as the resemblance between Bill's winning the lottery and someone else's

doing so isn't prominent: "When we were busy pitying poor Bill for his habits and not for his luck, the resemblance of the many possibilities [associated with the many tickets] was not so salient." However, once that resemblance becomes salient, we don't know: "After the change in context, it was no longer true that we knew he would lose. At that point, it was also no longer true that we knew he would never be rich." Lewis (1996), p. 565–6.

34. Perhaps Lewis might say that this possibility is like actuality, in that you've taken a bottle from the drugstore shelf marked "Aspirin" in both cases. Still, to obtain the result that you don't know you have a bottle of aspirin, Lewis has to say that what is saliently similar here is the labels of the bottles rather than their contents. However, I see no reason to say that, except that doing so would avoid the counterexample. In any case, could my concentrating on the difference between the contents of the bottles, i.e. making the resemblance of the labels less salient, ever make it correct for me to say that you know you have taken a bottle of aspirin instead of acetaminophen?
35. I am indebted here to Stewart Cohen. In his (1998), Cohen argues that Lewis's requirement of salient resemblance spells trouble for the way Lewis wants to handle Gettier examples. The Aspirin Case is a Gettier example. But my point is not that there is a conflict between Lewis's treatment of Gettier examples and his treatment of lottery phenomena. My complaint that he can't give a satisfactory treatment of lottery phenomena as such.
36. It should be noted that Lewis has some distinctive views about evidence and justification. He holds knowing requires having *evidence* that eliminates relevant alternatives, where the evidence one has is a matter of the character of one's actual perceptual experience and memory. At the same time, however, Lewis denies that knowledge requires *justification* for what one believes (1996), p. 550–1.
37. The familiar problem cases fall into line as well. The protagonist of the Zebra Case doesn't have evidence which entails that what he sees isn't a cleverly disguised mule, and, in the Barn Case, Henry doesn't have evidence which entails that what he sees isn't a barn facsimile. Given the strict conception of evidence, they can know these propositions only if the latter count as negations of irrelevant alternatives.
38. It may be possible to fashion variations of the Backsliding Account that avoid, or at least put off, some but not all of the problems I have just set out. Limitations of space and of the attention of most reasonable readers prevent me from pursuing the issue.
39. The RA theorist's understanding of induction has some strong affinities to the "partial entailment" account of inductive confirmation developed by Carnap and others. *Very* roughly, E partially entails H if E is part of the content of H. Establishing E logically eliminates some of the competitors to H (namely the ones that entail $-$E), and so establishing E may be taken to confirm H. As Carnap himself showed, the partial entailment view collapses if all possibilities (for Carnap, "state-descriptions") are accorded equal weight in evaluating the extent of confirmation. We might think of the RAT account of induction as something like a partial entailment view that uses resemblance to the actual world as the basis for assigning different weights to various possibilities; see below. For a careful exposition and analysis of the partial entailment view, one may consult Salmon (1970).
40. One would have to say the same thing about a presumption, if there is one, that distributions in nature are benign. If the argument I am about to give is correct, the RAT can't allow for the defeasibility of this presumption. Thus, the stratagem described in the previous paragraph becomes even more doubtful.

41. There are at least two senses in which a person could know X *without evidence*. The first is that S knows X without any evidence whatsoever as to the truth of X; roughly, S knows X *a priori*. That is the sense in which I have used the phrase here. My objection is that the RA account of induction allows Annie to have detailed *a priori* knowledge of the world she manifestly doesn't have.

    The other sense in which S might know X without evidence is that S has some evidence as to the truth of X, but this evidence doesn't license the acceptance of X. The RAT could be construed so as to allow knowledge without evidence in this second sense but in not in the first. In other words, an alternative to X would be irrelevant for S only if X is dissimilar from actuality *and* S has evidence relevant to the truth of X that meets some minimum threshold. If the RA theorist takes this view, then she doesn't have to concede that Annie knows −U in the circumstances described. Alternatives may be relevant for Annie that aren't relevant for Margaret, because Annie has no evidence at all for −U. These unexcluded relevant alternatives to −U deprive Annie of knowledge that −U. This maneuver fails in the end. Where do we set the threshold for evidence at which U becomes irrelevant to someone? Had Annie examined some emeralds, but her sample was insufficiently large, we wouldn't want to credit her with knowledge of −U, i.e. knowledge that there are no non-observed yellow emeralds. The only proper thing to say seems to be that U becomes irrelevant only if someone has evidence that provides strong inductive support for −U, or perhaps some proposition which entails −U. But if the RAT theorist takes this view, she has once again fallen into the Backsliding Account.
42. Lewis acknowledges that "this is the only place where belief and justification enter my story" (1996), p. 556. My thought here is that Lewis has to make this concession, but he can't comfortably afford to do so.
43. I am most grateful to Stewart Cohen, Richard Feldman, Ned Hall, David Lewis, and Thomas Smith for their help in writing this paper. I have presented versions of this material at the Arizona State University Conference on Skepticism and at CUNY, and I would like to thank the audiences for the discussions that took place on those occasions.

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