

Is Cartesian Skepticism Too Cartesian?

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1 Introduction

I understand Cartesian skepticism to be the doctrine that we lack all or nearly all knowledge of the external world. A prominent response is that Cartesian skepticism is too Cartesian. It arises from outmoded views in epistemology and the philosophy of mind that we now properly reject. We can and should move on to other things.¹

§2 takes up three broadly Cartesian themes: the epistemic priority of experience, underdetermination, and the representative theory of perception. I challenge some common assumptions about these, and their connection to skepticism.² §3 shows how skeptical arguments that emphasize causal considerations can avoid some suspect Cartesian commitments. §4 explores the related idea that perceptual knowledge is what I call *instrumental knowledge*. Drawing on that connection, §5 examines a skeptical argument based on minimal assumptions, and explains why a Moorean response to it is unsatisfactory. The problem of skepticism is still with us, and it requires a substantive solution.

2 Three Cartesian Principles

Cartesian skepticism is of interest to the extent that is supported by a classic line of argument. Here is one version:

Deceiver Argument

1. One's beliefs about the external world are supported, if at all, by one's "sensory evidence".
2. One's "sensory evidence" consists in experiences or beliefs about the character of one's experiences.

Combined, (1) and (2) amount to an epistemic principle with a Cartesian pedigree:

1 "The real discovery is the one which enables me to stop doing philosophy when I want to", Wittgenstein (1969, § 133).

2 From now on, 'skepticism' means Cartesian skepticism, unless otherwise indicated.

(EPE) The Epistemic Priority of Experience: One's beliefs about the external world are supported, if at all, by one's experiences or beliefs about the character of one's sensory experiences.

EPE will be disputed by philosophers of various stripes, including apriorists, foundationalists who think that beliefs about the external world are basic, and contextualists who reject claims of (absolute) epistemic priority.³

Let me introduce some notation. *M* stands for some state of affairs in the external world. *BIV(M)* designates a state of affairs in which (i) *M* doesn't obtain and (ii) the subject is a brain in a vat such that the effects on her sensory system are what they would be if *M* obtained. Continuing the argument:

3. One's experiences and/or beliefs about experiences provide no more evidential support to *M* than to *BIV(M)*.

From EPE and (3):

4. *M* and *BIV(M)* are equally well supported by one's evidence.

At this point, the skeptic may invoke another principle that is Cartesian in spirit:

(UD) Underdetermination: If two contrary propositions are equally well supported by *S*'s evidence, then *S* doesn't know either one.⁴

Given (4) and UD, we have:

5. One doesn't know *M* or *BIV(M)*.
6. Therefore, one doesn't know *M*.
7. Therefore, one has no knowledge of the external world.

Another traditional thesis comes into play in connection with (2). The details may vary, but the gist is that the "immediate" objects of perception are always mental. These intermediaries might be "sense-data, ideas, impressions, phantasms or other queer entities."⁵ I'll choose *sensations* as a blanket term for such items. We then have:

(RTP) The Representative Theory of Perception: We perceive objects in the external world by being aware of sensations, so that our awareness of external objects is mediated or indirect.⁶

3 For relevant discussion see Vogel (1997) and Vogel (2008).

4 For the role of underdetermination in skeptical arguments see Vogel (2004).

5 The list is due to Byrne (2004: 307).

6 See Jackson (1974: 1); Maund (2014: 5–6).

RTP is widely regarded as an unwholesome relic of Cartesianism. A stock response to the Deceiver Argument is that it can be rejected because it presupposes or relies upon RTP.⁷ There are several versions of this idea.

An anti-skeptic might claim that EPE entails RTP. Since RTP is false, so is EPE, and the Deceiver Argument is unsound. But consider a type of dogmatism about perceptual justification. On this view, perceptual beliefs are justified by sensory experiences with matching contents, and EPE holds. An alternative to RTP is intentionalism, which treats sensory experiences as intentional states and denies the existence of sensations. Dogmatism as specified is consistent with intentionalism. Therefore, EPE doesn't entail RTP, and the Deceiver Argument is unscathed.

Another thought is that RTP undergirds the Deceiver Argument by providing a rationale for EPE. According to RTP, we are immediately aware of sensations, not worldly objects. Since we lack direct awareness of worldly objects, any justification we might have for beliefs about them is bound to be inferential. Inferentially justified beliefs about the world have to rest on non-inferentially justified beliefs about something else. RTP offers a candidate, namely sensations. Since beliefs about the world are justified by beliefs about sensations, EPE is true. However, if we reject RTP, this motivation for EPE is removed, and the Deceiver Argument collapses.

The current objection is no stronger than the first, and for a similar reason. Suppose that perception is *metaphysically* complex, as RTP says. Besides the mind and the world, there are sensations that mediate between them. It doesn't follow that perception is *epistemologically* complex in the same way. We might have immediate, non-inferential justification for what we believe by perception, even if that simple cognitive relation is implemented or subserved by a complex metaphysical one. To assume otherwise—to assume that, structurally, the epistemology of perception mirrors the metaphysics of perception—is to make a mistake Sellars warned against when he criticized the Myth of the Given.⁸ RTP and EPE are independent, so denying RTP doesn't dislodge EPE.⁹

Some might believe that rejecting undercuts skepticism in any case. Suppose RTP is false, and genuine perception involves an unmediated grasp of a mind-independent state of affairs. These wide perceptual states are, or yield,

7 For references, see Macarthur (2003).

8 Sellars (1956).

9 There are other ways to argue for EPE. One important line of thought invokes accessibilism, the doctrine that what justification one has for a proposition is always knowable by reflection. See Williamson (2000, Chapter 8).

knowledge of the world. Therefore, skepticism can't gain any traction unless RTP is true. Since RTP is false, skepticism subsides.¹⁰

There is a lacuna in this train of thought, at the very least. That perception is wide doesn't ensure that perception affords knowledge. A metaphysically rich state that incorporates an object might be indistinguishable to you from a metaphysically leaner state that doesn't. To that extent, you would be unable to tell whether you are the victim of massive sensory deception, and skepticism remains a threat. The lesson once again is that metaphysical immediacy, in and of itself, needn't be epistemically significant. If further considerations aren't brought forward to establish that significance, denying RTP cuts no ice against skepticism.¹¹

3 Anti-Cartesian Skepticism

An essential component of skeptical arguments has been left out of the discussion to this point. For the Cartesian skeptic, the causal character of perception creates a special epistemic obstacle, liability, or risk. Tyler Burge (1986: 196) writes:

I will construe Descartes as capitalizing on the causal gap that we tend to assume there is between the world and its effects on us: different causes could have produced "the same" effects, certainly the same physical effects on our sense organs. I will interpret him as conceiving a person as radically mistaken about the nature of the empirical world. I shall see him as...imagining that the entities that lie at the ends of relevant causal chains (and perhaps the causal laws) are very different from what the person thinks.

Why is the "causal gap...between the world and its effects" inimical to knowledge? The long-standing answer is that the effects constitute a "veil of perception" which blocks cognitive access to the objects in our environment.¹² More

¹⁰ Mc Dowell (1982) is a classic source for this kind of approach, though there is much more to his view than what appears in the text. See Vogel (forthcoming) for extended discussion of this kind of position.

¹¹ See, *inter alia*, Vogel (1997), Martin (2004), and Vogel (forthcoming). To be clear, endorsing disjunctivism in particular, rather than RTP, doesn't help. Intentionalism is another alternative to RTP, as noted above. Byrne (2004) can be taken to suggest that intentionalism has anti-skeptical consequences.

¹² "This can seem to leave us in the position of finding a barrier between ourselves and the world around us. There would then be a veil of sensory experiences or sensory objects

explicitly, let's grant for now that RTP is correct. We are directly aware of sensations rather than material objects. The only way to learn about material objects is by a causal inference from the sensations they produce. That is:

(INF) **Causal Inference:** S's perceptual belief that P is justified, if at all, by an unaided causal inference from the occurrence of (some of) S's sensations to P.¹³

INF as stated implies RTP and EPE. The skeptic will offer various reasons why the inference from the occurrence of sensations to conclusions about the world can't be accomplished. The result is that there is a "veil of perception" that makes justified belief about the external world impossible.¹⁴

The possibility of framing Cartesian skepticism in this way may seem unimpressive. As noted in §2, many philosophers reject RTP out of hand. Others may accept RTP, but deny INF. They think that causal inference doesn't play an essential role in justifying our beliefs about ordinary objects, so the skeptic's challenge to such inferences is beside the point.¹⁵

In fact, the Deceiver Argument can be recast in a form that is independent of EPE, RTP and INF. Consider a version of eliminativism with respect to sensory experience:

Eliminativism. Perception gives rise immediately to beliefs about one's environment, and perceptual processes don't produce sensory experiences as such.¹⁶

The criticism that the Deceiver Argument presupposes RTP will be moot if the skeptic can proceed under the assumption that eliminativism is correct. What's more, eliminativism implies that our perceptual beliefs aren't justified by sensory experiences, since these don't exist.¹⁷ It's very plausible that if we don't have any sensory experiences, we don't have beliefs about sensory

which we could not penetrate but which would be no reliable guide to the world beyond the veil." Stroud (1984: 32–3). Bennett (1971) introduced the metaphor.

13 Whether the inference proceeds from beliefs about sensations or sensations themselves is a sore point, but nothing here turns on it.

14 Berkeley and Kant, if not Descartes himself, are canonical sources for the view that skepticism is underwritten by INF.

15 See Jackson (1974, Chapter 6), Maund (2014: 5–6).

16 Armstrong (1961) defends a position somewhat like eliminativism, but see Note 19.

17 What could perceptual beliefs be, if eliminativism is true? We can't say that they are beliefs prompted by sensory experience, since according to eliminativism there is no such thing. There are other answers, however. Armstrong holds that perceptual beliefs are ones that are caused in a distinctive way by a person's sensory apparatus (1961: 105).

experiences, either. In that case, our perceptual beliefs aren't justified by beliefs about sensory experiences.¹⁸ Therefore, eliminativism excludes EPE as well as RTP and INF.¹⁹

The Deceiver Argument can be restated in a way that respects eliminativism:

Belief Argument

1. If two mutually exclusive states of affairs X and Y would produce the same perceptual beliefs in you, you can't know by perception that X obtains or that Y obtains.
2. M and BIV(M) are mutually exclusive states of affairs that would produce the same perceptual beliefs in you.
3. Therefore, you don't know by perception that M obtains or that BIV(M) obtains.
4. Therefore, you don't know by perception that M obtains.
5. Therefore, as a general matter, you have no perceptual knowledge of the external world.
6. Therefore, you have no knowledge whatsoever of the external world.

This train of thought is consistent with eliminativism. To that extent, the objection that the skeptic is wedded to RTP, EPE, or INF is ill-taken.

The Belief Argument may save the skeptic from some difficulties, but others crowd in. For one thing, (2) is open to dispute. A widely held view is that the causal history of one's beliefs affects the content of what one believes. Let's say, for example, that circumstances are normal and you believe (L) that there is a lion before you. Your beliefs with the content L are generally caused by lions, and so are about lions. If you were a brain in a vat, however, none of your beliefs would be caused by lions. Therefore, none of your beliefs would be about lions. Therefore, you wouldn't believe L. Therefore, the states of affairs corresponding to L and BIV(L) wouldn't produce the same perceptual beliefs in you. Therefore, (2) is false.²⁰

This critique of the Belief Argument might be resisted in a number of ways, but pursuing these issues would take us too far afield.²¹ A different

18 Byrne (2004) and others deny that we have such beliefs in any case. For the opposite view, see Kelly (2008).

19 According to Armstrong (1961), perceptual beliefs are sensory experiences. A proponent of this view would accept the first part of eliminativism as I presented it, while rejecting the second. If perceptual beliefs can justify themselves, this truncated form of eliminativism would be consistent with the letter of EPE. But the issue concerning us is whether the skeptic can do without EPE, not whether a particular kind of anti-skeptic could accept eliminativism.

20 Other versions of content externalism could be deployed for the same purpose. An additional escape route may open up if perception puts one into a mental state that isn't a belief.

21 One thought in the vicinity is that content externalism doesn't license epistemological externalism; see among others Audi (2001), Madison (2008), Tillman (2012), and Wikforss (2007).

reworking of the Deceiver Argument keeps clear of such intricacies. It's natural to suppose that the causal dimension of perception gives it the epistemic significance it has. Perception generates knowledge insofar as the world impinges on one's sensory system in a distinctive way. This thought can be turned around. Differences in the world that don't lead to differences in sensory experience can't be known to obtain by perception. So, let's suppose that eliminativism is true, and RTP, EPE and INF are false. It is consistent with these stipulations that you should find yourself in the following situation.

Twins. The twins Rex and Homer are molecule-for-molecule identical, and you see Homer. Rex and Homer produce the same effects on your retinas, and on your visual system more generally. In this situation, you can't know by perception that Homer in particular is nearby.

Similar cases are easy to come by. You can't know by perception that what you see is fool's gold or real gold, because both substances affect you in the same way. You can't know by perception whether a painting is the original or an exact copy for the same reason. And so on.

The skeptic will try to assimilate his far-reaching denial of knowledge to our failure to know in cases like *Twins*. He will argue that being in Homer's presence and being in the presence of a suitably rigged computer affect your visual system in identical ways, just as the presence of Homer and the presence of his twin would do. Hence, you don't know by perception you are in the presence of Homer rather than a nefarious computer, just as you don't know by perception that you are in the presence of Homer rather than Rex. If no other information shores up your belief, you don't know you are in Homer's presence, full stop. This kind of argument can be generalized, leading to full-scale skepticism.²²

The lesson the skeptic wants to draw from *Twins* and examples like it can be formulated as:

Equipollence. If two mutually exclusive states of affairs X and Y would produce the same effects on your sense organs, then you don't know by perception that X obtains or that Y obtains.²³

²² I am following the development in Vogel (1997).

²³ Equipollence is a restricted and non-evidentialist analogue of the principle that a body of evidence can't justify rejecting a hypothesis that entails the evidence. See Vogel (2014). This connection is important, and I intend to return to it in future work.

The Perception Argument builds on Equipollence:

Perception Argument

1. Equipollence
2. M and $\text{BIV}(M)$ are mutually exclusive states of affairs that would produce exactly the same effects on your sense organs.
3. Therefore, you don't know by perception that M obtains or that $\text{BIV}(M)$ obtains.
4. Therefore, you don't know by perception that M obtains.
5. Therefore, as a general matter, you have no perceptual knowledge of the external world.
6. Therefore, you have no knowledge whatsoever of the external world.

This line of thought doesn't so much as mention experience. Thus, it avoids commitment to RTP, EPE and INF.²⁴

The Perception Argument has another important feature. A proponent of the argument denies that we have perceptual knowledge of the external world, but she may raise no scruples about inductive knowledge as such. For example, she may allow that extrapolation from past instances provides knowledge of future ones. Unlike knowledge by induction, knowledge by perception requires a successful causal transaction between the subject and the world. The skeptic denies that such transactions can bear the epistemic weight assigned to them; she needn't commit herself to anything more.²⁵

When confronted with the Perception Argument, many anti-skeptics will reject Equipollence as too strong. In the formulation presented above, the variables X and Y range over all metaphysically possible states of affairs. The anti-skeptics maintain that you can know by perception that X obtains even though states of affairs other than X would have the same effect on your sense organs. Suppose so. The skeptic's error lies in his assumption that a subject's knowing M by perception requires that the response of her sensory system to M differ from the response it would have to all other states of affairs. This isn't to say that the Perception Argument goes astray by assuming RTP, EPE, or INF. An anti-skeptic can't simply declare that Cartesian skepticism is too Cartesian, and be on her way. Rather, she has to develop and defend a substantive

²⁴ According to Williamson (2000: 164), a cardinal sin of skeptical arguments is their commitment to a particular symmetry claim: "Non-sceptics postulate a special asymmetry between the good case and the bad cases in a sceptical argument...Sceptics try to undermine the asymmetry by claiming that the subject has exactly the same evidence in the two cases". However, the Perception Argument as stated doesn't involve any assumptions about evidence at all; see Note 23. For this reason, the Perception Argument also does without UD, in letter if not in spirit.

²⁵ See Vogel (2004), Vogel (2014), Vogel (forthcoming).

epistemological position that provides for the failure of Equipollence, or blocks the transition from (5) to (6).²⁶

4 Perceptual Knowledge and Instrumental Knowledge

We can gain some perspective on the Perception Argument and prepare for the next section by examining what I'll call *instrumental knowledge*. Some examples are:

- Knowing that a printer is on by seeing its power light.
- Knowing how much fuel is in the tank by consulting the gas gauge.
- Knowing that a particular direction is North by reading a compass.
- Knowing that a sample is acidic by seeing that it turns litmus paper red.

These examples have certain features in common.

- (1) The object or source of instrumental knowledge (the printer's being on, the tank's being full, ...) causes a distinctive effect in a detector of some kind (the power light, the gas gauge...).
 - (2) The knower perceives the effect on the detector.
 - (3) The effect represents the state of the source.
 - (4) The knower infers the state of the source from the state of the detector.
 - (5) The detector is an artifact made for the purpose of obtaining the kind of knowledge in question.
- (5) isn't essential to instrumental knowledge, as I understand it. You could know that it's raining by hearing the sound the rain makes on the leaves of a tree. The leaves serve as a detector of rain, but they aren't an artifact made for that purpose. Some questions might be raised about (3). I'll let it stand, noting that it might need to be revised or dropped.²⁷

It can seem natural to suppose that perceptual knowledge is a species of instrumental knowledge. Perception, and perceptual knowledge, arises when an

²⁶ It might seem that Equipollence is tainted with Cartesianism insofar as it requires knowledge by perception to be certain or infallible. One reply is that even if X and Y produce different effects on your sensory system, respecting Equipollence, you might still confuse the presence of the one with the presence of the other. Satisfying Equipollence doesn't exclude the possibility of error, or guarantee knowledge for that matter.

²⁷ If instrumental knowledge requires representation, do worries about content externalism apply here? According to (3) as stated, instrumental knowledge that X requires that X be represented in the "good case" when X obtains. Whether the instrument can represent X when X doesn't obtain is left open. There is more to say, but not on this occasion.

object in the world causes a subject to enter a state that represents the object in a distinctive “sensory” way. Thus, conditions (1) and (3) are satisfied. Further, according to RTP, the subject directly perceives the representation (the sensation, in this instance). So, a version of condition (2) is met. If INF holds as well, then your perceptual beliefs about external objects are justified by inference from their effects on you, along the lines of (4). In short, given RTP and INF, perceptual knowledge is a species of instrumental knowledge.

This result won’t encourage a skeptic who wants to keep clear of Cartesianism. But consider what is unquestionably instrumental knowledge of objects, namely knowing that the opera is beginning by watching a simulcast on TV. (1) The goings on in the opera house cause an appropriate pattern of pixels on the TV screen. (2) The viewer sees the state of the screen. (3) The state of the screen represents (pictures, in fact) the performance. (4) Mobilizing background information about the TV, the viewer infers that the opera is beginning (rather than, e.g., that an unusual video game is beginning).²⁸ Now, suppose that the TV has an output cable that can feed another video device. And suppose further that Charlie has a special port installed in his head that connects to the visual system of his brain. Charlie plugs the cable into the port, bypassing the TV set, and he has visual experience as of the opera beginning. What happens in the opera house affects Charlie in such a way that the state of Charlie’s visual system represents it faithfully. Therefore, conditions (1) and (3) are met. However, the others aren’t. (2) Charlie doesn’t perceive anything other than the performance. As to (4), let’s grant, in opposition to INF, that inference plays no role in the acquisition of perceptual knowledge. For Charlie, everything is as though his visual system were getting its input from his eyes. If he doesn’t employ inference under normal circumstances, he won’t employ it when the signal to his visual system comes through the port in his head. Hence, (4) doesn’t apply.

Still—and this is the key point—there doesn’t seem to be an epistemically significant difference between Charlie’s watching the opera on the TV and his “watching” it via the feed to his brain.²⁹ Plugging the cable into Charlie’s brain doesn’t increase his powers of discrimination or enable him, in any other way, to know things about the opera that he wouldn’t know by looking at the TV. That is, Charlie’s capacity for perceptual knowledge is what it would be if perceptual knowledge were instrumental knowledge as set out above. We arrive at

28 See Wright (2002).

29 As a matter of fact, Charlie satisfies the criteria for “recognitional perception” identified by Prinz (2006), and he seems to have what Lewis (1980) would consider “prosthetic vision.”

this conclusion even if we endorse eliminativism and reject EPE, RTP, and INF. Charlie can be described as having instrumental knowledge about the opera in an (innocuously) extended sense.³⁰

Now, instrumental knowledge seems subject to the following constraint, which is a generalization of Equipollence:

Causal Constraint. If X and Y would produce the same state in a detector (i.e., generate the same signal), then you can't know by using the detector that X obtains and Y doesn't.

Reflection on various instances of instrumental knowledge makes the Causal Constraint plausible. Both a loose gas cap and a bad spark plug will cause a car's check-engine light to go on. That's why noticing the light doesn't provide knowledge that the gas cap is loose or that a spark plug is bad. Both hydrochloric acid and nitric acid turn litmus paper red. That's why you can't know by using litmus paper whether the sample you have is hydrochloric acid or nitric acid. Finally, think of a thermometer that is accurate between 0 degrees and 100 degrees. Above 100, it malfunctions and reads somewhere between 80 and 90. The thermometer says 87. You can't know by consulting it whether the temperature is 87 or over 100. It is easy to multiply examples like these, supporting the Causal Constraint.

A Cartesian skeptic maintains that the causal character of perception clashes with its supposed status as a source of knowledge about the external world. Conceiving of perceptual knowledge as instrumental knowledge bolsters this point of view. If perceptual knowledge is instrumental knowledge, then perceptual knowledge falls under the Causal Constraint. Equipollence holds as a special case, allowing the Perception Argument to get underway. A skeptic can proceed on these terms without relying on suspect Cartesian assumptions like EPE, RTP, and INF.

Still, the Causal Constraint, like Equipollence, may strike us as too demanding or fastidious. By way of illustration, imagine that your home is equipped with a burglar alarm and only you have the code to turn it off. Entry by an intruder will send out a warning, but so will a short circuit within the device. If the Causal Constraint applies, the alarm doesn't provide you with knowledge

³⁰ Stroud likens the epistemic situation of a perceiver to that of someone watching a television, in the course of explaining how the veil-of-perception doctrine leads to skepticism (1984: 33, 210). I'm saying very nearly the opposite: whether perception is metaphysically direct or indirect, inferential or non-inferential, is irrelevant so far as the skeptic is concerned. Rather, the issue is (what the skeptic takes to be) the epistemically tenuous nature of the causal relation between the world and the perceiving subject.

that someone has broken into your home—there may have been an electrical fault instead. But, the thought goes, when the alarm is activated, you can and should disregard the possibility that it has been set off by a short circuit. You are in a position to know that a break-in has occurred all the same.³¹

5 The Bottleneck Argument and Moorean Deduction

The Perception Argument rests on Equipollence. This principle is supported by a range of examples, but, as noted earlier, philosophers from various camps will regard it as too strong. However, a close cousin of the Perception Argument emphasizes the causal roots of skepticism and appears less vulnerable.

Let's imagine a militantly anti-Cartesian skeptic named Nelson. Nelson is an eliminativist, as described above. He rejects RTP, EPE, and INF, and is agnostic about UD. However, he does accept the Closure Principle for Knowledge. Nelson asserts:

Bottleneck Argument

1. Let *BIV* stand for *S is a thoroughly deceived brain in a vat*. *S* doesn't know by perception that \neg BIV.
2. *S* doesn't know by deduction from something she does know by perception that \neg BIV.
3. *S* has no other source of knowledge that \neg BIV.
4. Therefore, *S* doesn't know that \neg BIV.

The Closure Principle gives us:

5. If *S* has any knowledge about the external world, *S* knows \neg BIV.
6. Therefore, *S* doesn't have any knowledge about the external world.

Nelson might treat (1) as a datum. Ordinarily we would say there are some things you can see to be the case, and some not. You can see that there's blood in the vial, but you can't see that it's type A blood or type O blood. You can see that there's a zebra in the pen at the zoo. You can also see that there isn't an elephant in the pen. But you can't see that there isn't a cleverly disguised mule in the pen. Plausibly, knowing \neg BIV is like that. You can't see—and in general you can't know by perception—that \neg BIV.

There is more to say in favor of (1). We might hold that (1) is true because thought outruns perception. You can believe \neg BIV, but you can't see that \neg BIV, because there is no way that you're not being a brain in a vat looks to you. In other words, what you know by seeing is limited by what you can represent visually, and you can't visually represent \neg BIV. Nelson will have some reservations

³¹ See Dretske (2008: 20–21).

about this suggestion. As an eliminativist, he regards limitations on perceptual representation as epistemologically insignificant. Perception gives rise directly to beliefs, so in principle you can have a perceptual representation of anything that you can believe. You can believe \neg BIV, of course, so to that extent you should be able to know \neg BIV by perception.³²

Nelson would prefer to motivate (1) by emphasizing the causal character of perception. Imagine you know by perception that there is a rabbit in the yard. You know this, at least in part, because you perceive the rabbit, and perception is a causal process. More generally:

If S knows by perception that a state of affairs X obtains, then X causes S to believe that X.

Now, in simple situations, counterfactual dependence is the hallmark of causation. So perceptual knowledge obeys:

Counterfactuality. If S knows by perception that a state of affairs X obtains, then if X weren't the case, S wouldn't believe that X.

The reason why you don't know \neg BIV by perception is that the necessary condition laid down by Counterfactuality isn't met. That condition is:

If you were a brain in a vat, you wouldn't believe that you aren't a brain in a vat.

If you were a brain in a vat, you *would* believe that you aren't one. So, given Counterfactuality, you don't know by perception that \neg BIV.³³

The claim that a brain in a vat would believe that she isn't one may raise worries about content externalism (see above). Those can be avoided by shifting the focus of Counterfactuality from S's beliefs to the state of S's sensory system. If you perceive that \neg BIV, the truth of \neg BIV must affect your sensory system in some way—say, by putting it into some state Q.³⁴ Then, you know \neg BIV by perception only if:

³² For related discussion, see below.

³³ Williamson (2000: 150–151) raises some similar points. However, he doesn't note that that the causal character of perception provides a reason why a sensitivity requirement ought to apply to perceptual knowledge, but not to knowledge in general.

³⁴ Some disjunctivists deny that a worldly state of affairs and one's perceiving that state of affairs are related by causation. But even these philosophers ought to acknowledge that

If you were a brain in a vat, your sensory system wouldn't be in state Q.

If this change is made, an important difference between the Bottleneck Argument and the Perception Argument emerges. According to Equipollence, you know X by perception only if, in *all* possible worlds where X is false, the effect on your sensory system differs from the one that X produces. According to Counterfactuality, you know X by perception only if, in the *nearest* possible world(s) where X is false, the state of your sensory system differs from the one X produces. The modified Bottleneck Argument, like the Perception Argument, demands that you have some way to know that all alternatives to X are false, but the modified Bottleneck Argument places less of this responsibility on your sensory apparatus than the Perception Argument does.

As we have seen, the Bottleneck Argument is underpinned by the Closure Principle and Counterfactuality. This combination prompts an objection. Counterfactuality is a special case of the Sensitivity Condition for knowledge. A sensitivity theorist holds that S knows X only if:

Sensitivity Condition. If X were false, S wouldn't believe X (in the same way).

Dretske and Nozick have taught us that mixing the Sensitivity Condition with the Closure Principle leads to skepticism. If we reject the Sensitivity Condition, as we should, the Bottleneck Argument gets stopped in its tracks. Nelson will be unmoved by this response. He doesn't claim that *all* knowledge is subject to the Sensitivity Condition. He recognizes that at least some non-perceptual knowledge needn't satisfy that requirement, and he has a cogent reason for maintaining that perceptual knowledge, in particular, does obey it.³⁵

If we retain Counterfactuality, we can still escape the Bottleneck Argument by rejecting the Closure Principle. The drawback is that the principle is true. And dialectics aside, the Closure Principle matters in this context because it connects knowledge of the world with knowledge that we aren't victims of massive sensory deception. I don't think we should doubt for a moment that we know a lot, including that we aren't brains in vats. But how do we know that we aren't? And how does our knowledge of ordinary things accommodate, without capitulating to, the possibility of massive deception? Abandoning the Closure Principle may obviate such questions, which go to the heart of why skepticism is philosophically interesting in the first place.

the world's affecting one's sense organs is a *genetic* condition for perceptual knowledge (see below). Snowdon (1980) might be a holdout.

35 See Vogel (2012).

Assume, then, that both Counterfactuality and the Closure Principle are correct. One might reply to the Bottleneck Argument by invoking what I'll call *Moorean deduction*: you know by perception that, e.g., you have a hand. You can infer from what you know that you aren't a deceived brain in a vat. In this case, your knowledge that you aren't a deceived brain in a vat is deductive rather than perceptual. You know (by perception) that you have a hand, and you know (deductively) that you aren't a deceived brain in a vat. The Closure Principle holds. Nevertheless, we escape the Bottleneck Argument because Premise (2) is false.

Nelson will resist this response, and rightly so. He begins by pointing out that Moorean deduction, if legitimate, ought to apply to instrumental knowledge across the board, rather than perceptual knowledge more narrowly. Suppose you have instrumental knowledge of a proposition P but don't have instrumental knowledge of the clearly entailed proposition Q. You can know Q by a Moorean deduction from P, maintaining the Closure Principle.³⁶ Returning to the example in §3, when the alarm goes off you know that:

(B) A break-in has occurred.

B obviously entails

(¬S) It isn't the case that the alarm has had a short circuit while no break-in has occurred.

The security system can't detect that there hasn't been a short circuit instead of a break-in, so you don't have instrumental knowledge that ¬S. The suggestion on offer is that you know ¬S by a Moorean deduction from B.

To evaluate this proposal, we need to observe that instrumental knowledge has a genetic aspect and a normative aspect. Genetically, instrumental knowledge is the upshot of a certain kind of interaction with a detector. Normatively, a belief acquired as the result of that sort of interaction counts as knowledge (other things being equal). Suppose you deduce ¬S from B. Your belief that ¬S isn't instrumental knowledge on genetic grounds, because you arrive at it by inference, rather than by attending to the alarm as such. But, from a normative standpoint, this genetic difference seems inconsequential. Deduction can't yield knowledge that the detector itself is unable to provide. Hence, the Moorean response to the Bottleneck Argument is no good.³⁷

³⁶ Note that Moorean deduction has to proceed from instrumental knowledge, so it wouldn't be available to a brain in a vat.

³⁷ For the record, my own view is that Premise (3) of the Bottleneck Argument is incorrect.

This judgment needs elaboration and defense. Nelson might argue as follows. By assumption, you have instrumental knowledge that B. You are aware that:

(A) The alarm has gone off.

and you take its doing so to indicate a break in. That is, you accept:

(A \supset B).

You infer B from A via (A \supset B) and thereby come to know B. Now, B entails \neg S, so we may suppose that you accept:

(B \supset \neg S).

If you have your wits about you, you will put these two material conditionals together and recognize that:

(A \supset \neg S).

It seems that when you are alerted by the alarm and accept A, you could believe \neg S via the conditional (A \supset \neg S), just as you can believe B via the conditional (A \supset B).

Suppose you do move directly from A to \neg S. Nelson's thought is that if you satisfy the genetic criteria for instrumental knowledge with respect to B, you ought to satisfy them with respect to \neg S as well. Then, if you don't acquire instrumental knowledge that \neg S, your belief that \neg S must not meet the normative requirements for knowledge. According to the Moorean, that is indeed how things stand. He claims that, to attain knowledge that \neg S, you must deduce \neg S from B rather than A. But how does taking a detour through B permit your belief that \neg S to satisfy the normative requirements for knowledge? Nelson thinks that the Moorean has nothing satisfactory to say at this point, making his response to the Bottleneck Argument untenable.

The Moorean might protest: According to Nelson, you learn that an intruder has broken in by inferring as much from the alarm's going off. Moorean deduction does no real work, because the two transitions you make (from A to B and from B to \neg S) could be combined into one. However, what Nelson says bears on the Bottleneck Argument only if perceptual knowledge is inferential in the first place—a Cartesian assumption we are rejecting.³⁸

³⁸ The possibility that perception is "cognitively penetrated" may undermine the distinction between perceptual and inferential knowledge on which this objection depends. See Siegel (2012).

This rejoinder misses the point. What undoes Moorean deduction is that if the power of a detector is limited, its power—and hence its capacity to generate knowledge—can't be enhanced by someone's making an inference downstream.³⁹ A successful Moorean deduction would, in effect, accomplish exactly that. The total number of inferences involved isn't the issue *per se*.

To get a better grip on things, we can imagine that the detector does the Moorean deduction for you, so to speak. Let's say you have an alarm system as described above, but it works by sending a text message to your phone saying "Alarm activated by an intruder!" We're supposing that if you receive this message you will have instrumental knowledge that a break-in is occurring. Let's add to the story that your phone has been re-programmed by a logically astute and well-meaning engineer. When your phone receives the text message from the security system, your phone does some computing and displays "Alarm not activated by a short circuit rather than a break in!" Do you have instrumental knowledge that a short circuit isn't responsible for the alert? We assumed initially that your security system is unable to detect the absence of a short circuit as such. Adding an electrical fault sensor to the system would change that; reprogramming your phone wouldn't. So, when your phone carries out the inference for you, as it were, you can't know instrumentally that there hasn't been a short circuit. But how would things be any different if the inference happens to be located inside your head? In short: if Moorean deduction is successful, then $\neg S$ can't be known instrumentally, but can be known by deduction. Yet if $\neg S$ can be known by deduction, then $\neg S$ can be known instrumentally (via the reprogrammed phone). Therefore, Moorean deduction is unsuccessful.

Let's step back and survey the ground covered over the last few pages. The Bottleneck Argument rests on the Closure Principle and Counterfactuality. Allowing Moorean deduction offers a way to accept those assumptions while resisting the argument's skeptical conclusion. But if deduction can add to perceptual knowledge as the Moorean envisions, deduction should be able to accomplish the same thing with respect to instrumental knowledge in general. There are two interlocking reasons to deny that instrumental knowledge can be supplemented in this fashion: (1) The distinction between instrumental knowledge and deductive knowledge stemming from it is superficial. (2) The power of a detector can't be enhanced by any inferences one might make. Since Moorean deduction is futile, the Bottleneck Argument remains unanswered.

39 I'm ignoring various fine points. The term "power" is non-specific and non-rigorous. Engineers discuss the sensitivity, precision, accuracy and resolution of detectors, none of which can be enhanced by inference. See Northrop (2005).

The Moorean has more to say, though. He will insist, correctly, that there are situations in which a proposition can be known by perception, and a logical consequence of that proposition can't be known in the same way. This happens when what we can think outruns what we can perceive. As an illustration, we can represent visually (Z) there is a zebra in the pen, but we can't represent visually (Z & C) there is a zebra in the pen and the Compactness Theorem is true. That is why we can know Z by perception, but not Z & C. We can, however, know Z & C by deduction from Z. Deduction is efficacious in this situation because it allows us to bring supplementary representational resources to bear on what we perceive to be so. Otherwise, we have everything we need to know Z & C.⁴⁰

The question is whether Moorean deduction fits this paradigm. For comparison, let's return to the example in which your burglar alarm sends a message to your phone. In its original configuration, the phone can't represent or provide knowledge that the security system hasn't been set off by a short circuit. The reprogrammed phone can represent that a short circuit isn't triggering the message you receive, but it can't give you knowledge to that effect. That is because, in and of itself, changing the representational capacity of an instrument can't increase its power and, thereby, the knowledge that the instrument can provide. This observation applies to Moorean deduction. If you can't see that you aren't a brain in a vat, mobilizing additional representational resources via deduction is no way to make up for that lack. Moorean deduction is thus unlike inferring Z & C from Z, where bringing further concepts to bear can increase what we know.⁴¹

The Moorean might try another tack. He will grant that instrumental knowledge obeys a sensitivity condition, as perceptual knowledge more narrowly does. That is, S knows P via a detector only if:

40 Inference comes into play in this instance because visual representation is hyperintentional. But the hyperintentionality of perception doesn't create the need for Moorean deduction; see below.

41 The considerations I've raised are related to certain themes in the work of Fred Dretske. He maintained that an information channel (source of knowledge) can't provide knowledge that conditions for the proper functioning of that channel are met. Dretske (2008) provides an overview of his position; for discussion of Dretske's views see Luper (2006). The results in the text can be obtained by insisting that the Sensitivity Condition extends beyond instrumental knowledge to beliefs derived from instrumental knowledge by inference. Dretske would be sympathetic, insofar as he was inclined to view all knowledge as instrumental knowledge. But giving full sway to the Sensitivity Condition is undesirable (see immediately below). A better alternative might be to say that the difference between instrumental knowledge and deductive knowledge proceeding from it lacks weight (see above). Therefore, the Sensitivity Condition applies to both, though it need not apply in other more problematic cases.

(SIK) Sensitivity of Instrumental Knowledge. If P were false, S wouldn't believe via the detector that P.

However, knowledge gained by Moorean deduction from instrumental knowledge that Z isn't subject to a comparable sensitivity condition. Knowing P by deduction from Z doesn't obey:

(SDK) Sensitivity of Deductive Knowledge. If P were false, one wouldn't believe by deduction from Z that P.

The Moorean will analyze our working example as follows. Imagine that a burglar sets off the security system, and your phone reads B. Presumably, if the alarm hadn't been activated by an intruder, it wouldn't have been activated at all. You wouldn't have received the message, and you wouldn't have believed B by reading it. SIK is satisfied, so you can have instrumental knowledge that B. By contrast, the alarm system can't provide instrumental knowledge that \neg S. If a short circuit were to occur, you would receive a text message and come to believe \neg S. That is, if \neg S were false, you would believe \neg S by consulting your phone, violating SIK. You can, however, know \neg S by a Moorean deduction from B. Admittedly, if a short circuit had occurred, you would have received warning of a break-in, and inferred that the alert wasn't due to a short circuit. That is to say, if \neg S were false, you would believe \neg S by deduction from B. SDK isn't satisfied. But SDK is wrong, so there is no bar to your knowing \neg S. All in all, restricting the sensitivity condition to instrumental knowledge gives Moorean deduction something to do, and allows Moorean deduction to do it.

But think that SIK is true, while SDK is false? SIK stipulates that S has instrumental knowledge only if S's believing and the state of the world are correlated in a certain way. For a reliabilist of a certain stripe, this kind of alignment between mind and world (via a detector) is *constitutive* of instrumental knowledge.⁴² If the reliabilist countenances Moorean deduction, she has to allow that the same sort of alignment isn't necessary for deductive knowledge. It is then incumbent on the reliabilist to (i) identify what instrumental knowledge and deductive knowledge have in common that makes them both knowledge *simpliciter*; and (ii) explain how sensitivity can sometimes be constitutive of

42 The alternative, which strikes me as correct, is that SIK reflects how we can come to know; it doesn't specify what knowledge is, or in virtue of what someone knows something. In the language used above, SIK is a genetic requirement for instrumental knowledge, rather than a normative one.

knowledge, but not necessary for knowing by Moorean deduction.⁴³ I doubt that an account along these lines can be given. But without it, invoking and dispensing with sensitivity requirements to secure the legitimacy of Moorean deduction seems like a lost cause.

It's worth noting in this connection that treatments of Moorean deduction in the literature have centered on the status of warrant transmission over entailment and the failure of transitivity for evidential support.⁴⁴ However, as we have seen, the legitimacy of Moorean deduction becomes an issue within a framework that is concerned with instrumental knowledge, and assigns no role to evidence as such. It seems possible to account for the failure of Moorean deduction in these terms, for at least some cases. To this extent, the focus on transmission and the reach of evidence misses something important.⁴⁵

There is another lesson to be drawn. All epistemologists have to allow for the difference between the perceptual and non-perceptual dimensions of knowledge, without losing sight of the unity of knowledge itself. How can this be done? Cartesianism, broadly speaking, affords an answer: perception causes sensory experiences, which provide evidence for everything we know about the world. This claim incorporates and expands upon EPE. Rival views reject EPE, with the hope that doing so will avoid skepticism. These efforts will fail if they wind up distorting the nature of knowledge in an attempt to save it. The attempt to marry instrumental knowledge with Moorean deduction risks doing just that; it risks breaking knowledge up into two fundamentally different things, that are also supposed to be the same thing. We would do better to accept EPE, and argue that experience itself provides reason to deny that we are victims of massive sensory deception.⁴⁶ On this approach, Cartesianism plays a role in defeating skepticism rather than promoting it, and the thought that Cartesian skepticism is too Cartesian gets things the wrong way around.⁴⁷

43 Roush (2005) holds a position somewhat like this one.

44 See Moretti and Piazza (2013).

45 In my judgment, Dretske (2005) conflates these considerations, which is a mistake.

46 Stroud (1996) suggests that EPE emerges as a response to skepticism, rather than a presupposition of it. Still, for Stroud, EPE stems from something like RTP.

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Bibliography

- Armstrong, D. 1961. *Perception and the Physical World*. New York: Routledge.
- Audi, R. 2001. "An Internalist Theory of Normative Grounds," *Philosophical Topics* 29: 19–46.
- Bennett, J. 1971. *Locke, Berkeley, Hume: Central Themes*. Oxford: Oxford University Press.
- Burge, T. 1986. "Cartesian Error and the Objectivity of Perception." In P. Pettit & J. McDowell (eds.), *Subject, Thought, And Context*, 117–136. Oxford: Clarendon Press.
- Byrne, A. 2004. "How Hard are the Skeptical Paradoxes?" *Noûs* 38: 299–325.
- Dretske, F. 2005. "Is Knowledge Closed under Known Entailment? The Case Against Closure." In M. Steup & E. Sosa (eds.), *Contemporary Debates in Epistemology*, 13–26. Blackwell.
- Dretske, F. 2008. "Epistemology and Information," *Philosophy of Information: Handbook of The Philosophy of Science*, 8: 29–48.
- Jackson, F. 1977. *Perception*. Cambridge: Cambridge University Press.
- Kelly, T. 2008. "Evidence: Fundamental Concepts and the Phenomenal Conception," *Philosophy Compass* 3: 933–955.
- Lewis, D. 1980. "Veridical Hallucination and Prosthetic Vision," *Australasian Journal of Philosophy* 58: 239–249.
- Luper, S. 2006. "Dretske on Knowledge Closure," *Australasian Journal of Philosophy* 84: 379–394.
- Macarthur, D. 2003. "McDowell, Scepticism, and the 'Veil of Perception,'" *Australasian Journal of Philosophy* 81: 175–190.
- Madison, B.J.C. 2009. "On the Compatibility of Epistemic Internalism and Content Externalism," *Acta Analytica* 24: 173–183.
- Maund, B. 2014. *Perception*. New York: Routledge.
- McDowell, J. 1995. "Knowledge and the Internal," *Philosophy and Phenomenological Research* 55: 877–893.
- Moretti, L. & T. Piazza. 2013. "Transmission of Justification and Warrant," *The Stanford Encyclopedia of Philosophy*.
- Northrop, R. 2005. *Introduction to Instrumentation and Measurements*, 2nd edition. Boca Raton, FL: CRC-Taylor & Francis.
- Prinz, J. 2006. "Beyond Appearances: the Content of Sensation and Perception." In T. Gendler & J. Hawthorne (eds.), *Perceptual Experience*, 434–460. Oxford: Oxford University Press.
- Roush, S. 2005. *Tracking Truth: Knowledge, Evidence, and Science*. Oxford: Oxford University Press.
- Sellars, W.S. 1956. "Empiricism and the Philosophy of Mind," *Minnesota Studies in the Philosophy of Science* 1: 253–329.

- Siegel, S. 2012. "Cognitive Penetrability and Perceptual Justification," *Noûs* 46: 201–222.
- Snowdon, P. 1980. "Perception, Vision and Causation," *Proceedings of the Aristotelian Society* 81: 175–192.
- Stroud, B. 1984. *The Significance of Philosophical Scepticism*. Oxford: Oxford University Press.
- Stroud, B. 1996. "Epistemological Reflection on Knowledge of the External World," *Philosophy and Phenomenological Research* 56: 345–358.
- Tillman, C. 2012. "Reconciling Justificatory Internalism and Content Externalism," *Synthese* 187: 419–440.
- Vogel, J. 1997. "Skepticism and Foundationalism," *Journal of Philosophical Research* 22: 11–28.
- Vogel, J. 2004. "Skeptical Arguments," *Philosophical Issues* 14: 426–455.
- Vogel, J. 2008. "Internalist Responses to Skepticism." In John Greco (ed.), *The Oxford Handbook of Scepticism*, 553–556. Oxford: Oxford University Press.
- Vogel, J. 2012. "The Enduring Trouble with Tracking." In Kelly Becker & Tim Black (eds.), *The Sensitivity Principle in Epistemology*, 122–151. Cambridge: Cambridge University Press.
- Vogel, J. 2014. "E & -H." In Dylan Dodd & Elia Zardini (eds.), *Scepticism and Perceptual Justification*, 87–107. Oxford University Press.
- Vogel, J. (forthcoming). "Wide Epistemic States." In J. Dutant and F. Dorsch (eds.), *The New Evil Demon Problem*. Oxford: Oxford University Press.
- Wikforss, Å. 2007. "Semantic Externalism and Psychological Externalism," *Philosophy Compass* 3: 158–181.
- Williamson, T. 2000. *Knowledge and its Limits*. Oxford: Oxford University Press.
- Wittgenstein, L. 1969. *On Certainty*. (G.E.M. Anscombe and D. Paul, eds. and trans.). Oxford: Basil Blackwell.
- Wright, C. 2002. "(Anti-)sceptics Simple and Subtle: G.E. Moore and John McDowell," *Philosophy and Phenomenological Research* 65: 330–348.