

SKEPTICS WITHOUT BORDERS

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The specter of skepticism once again haunts philosophy. Strangely, though, few people unfurl the skeptical banner. As Bryan Frances notes,

the notion of scepticism elicits strange behaviour in philosophers, especially epistemologists. Many philosophers, even contemporary ones who should know better, sometimes assert that no one is really a sceptic. Philosophers are pretty much professionally *forbidden* from being radical sceptics even though we aren't forbidden from believing any of many other comparably outlandish claims.¹

Despite the dearth of radical skeptics among us, many sense an urgent need for radical epistemological restructuring to defeat “the skeptic.” While the journals buzz with discussions about contextualism, closure principles, epistemic luck, safety, sensitivity, underdetermination, and the like, we have lost sight of how far we have come. Before the twentieth century, and even during much of the twentieth century, knowledge involved certainty or some such strong modal notion. Roughly speaking, to know that *p* meant that one was justifiably *certain* that *p* was true. Along similar lines, to know that *p* meant that one had a rationally *infallible* belief that *p*. Worries that our beliefs did not meet such a highly exalted standard loomed large historically. But not so much now. For we have learned to live with fallibilism; we are chastened knowers. Skep-

ticism no longer worries us as much, except mostly as an academic exercise.

Although we are chastened knowers, we apparently are not so chastened as to abandon all attempts at securing exalted epistemic states. Timothy Williamson notes that a constant source of temptation in philosophy is to postulate a realm of “luminous” truths that are always open to our view.² This realm allegedly constitutes our cognitive home in which every error is always rectifiable if we just pay sufficient attention. On the surface, this way of characterizing luminosity implies that in some circumstances one can achieve certainty through the rectification of any mistake. After all, Williamson portrays this realm as comprising truths to which we have “perfect accessibility” or a “*guaranteed* epistemic access.”³ For example, if one is in pain, one can *guarantee* that one knows this by carefully considering one’s inner phenomenology. While it is comforting to think that one has such a secure cognitive home, Williamson contends that this tempting thought is illusory because there are no (nontrivial) luminous truths: we are cognitively homeless. Although Williamson’s anti-luminosity argument has received considerable attention,⁴ escaping unnoticed is a strikingly similar argument from David Hume. Our purpose in this essay is to highlight some of the arresting parallels between Williamson’s reasoning and

Hume's that will allow us to identify a common skeptical intuition underlying both arguments, which we shall call the "quarantine problem." This problem reinforces the lesson that we should be skeptical about any kind of certain or luminous knowledge. This comparison has two additional advantages: first, the fact that Hume offers a similar argument centuries before Williamson's anti-luminosity argument strengthens the plausibility of Williamson's reasoning. Second, by focusing on the core skeptical problem, we can see that the anti-luminosity reasoning that Williamson applies to mental conditions also applies to allegedly luminous necessary truths such as simple arithmetical truths.

The essay proceeds as follows. In the first section we explain in more depth Williamson's reasons for contending that we are cognitively homeless. The second major section concentrates on Hume's argument that attacks luminosity from a different angle. In the third section we formulate the fundamental skeptical problem that lies at the basis of both Hume's and Williamson's skeptical reasoning. In the final section we explain how the perspective afforded by the quarantine problem helps us to see why defenders of luminosity have failed to secure a cognitive home.

I. HOW HOMELESS ARE WE?

Williamson's anti-luminosity argument is intricate. We shall concentrate on the skeletal structure of the reasoning with an eye toward highlighting the common core intuition of Williamson's argument that is likewise present in Hume. To this end we shall, where necessary, dig deeper into the marrow of Williamson's argument to uncover its core motivations.

The target of the anti-luminosity argument is a Cartesian thesis about the kind of access we have to some core mental states. As we have mentioned, these core mental states are *luminous* in the sense that one is *always* in a position to know whether one is in the

state: "If S belongs to that [central] core [of mental states], then *whenever* one attends to the question one is in a position to know whether one is in S."⁵ The idea is that there is nothing that inherently blocks our access to such states. Even though mistakes may be possible, they are always rectifiable.⁶ In our cognitive homes we can successfully remove every reason for doubt; if we pay sufficient attention we can assure ourselves that, for any luminous mental state, we are indeed in that state. It is commonly thought that conditions such as *being in pain* or *being appeared to bluely* are luminous.

We can express the main gist of the anti-luminosity argument informally. If some condition is luminous, then one is always in a position to tell whether it obtains. But for any nontrivial condition of interest—a condition that obtains in some cases and fails to obtain in other cases—there will be a gradation of imperceptible changes from cases in which the condition obtains to cases in which it does not obtain. Hence, there will be a pair of cases—one in which the condition obtains and the other in which the condition does not obtain—such that one is not in a position to tell whether or not the condition obtains. The reason for this is that the change between those cases is too small to discriminate. This conclusion conflicts with the luminosity assumption; given a gradation of imperceptible changes, one is not always in a position to tell whether the condition obtains. So the assumption that there are conditions that "*always* shine bright enough to make their presence visible" is false.⁷

As Williamson explains:

The main idea behind the argument against luminosity is that our powers of discrimination are limited. If we are in a case α , and a case α' is close enough to α , then for all we know we are in α' . Thus what we are in a position to know in α is still true in α' . Consequently, a luminous condition obtains in α only if it also obtains in α' , for it obtains in α only if we are in

a position to know that it obtains in α . In other words, a luminous condition obtains in any case close enough to cases in which it obtains. What counts as close enough depends on our powers of discrimination. Since they are finite, a luminous condition spreads uncontrollably through conceptual space, overflowing all boundaries. It obtains everywhere or nowhere, at least where we are in a position to wonder whether it obtains. For almost any condition of interest, the cases in which it obtains are linked by a series of imperceptible gradations to cases in which it does not obtain, where at every step we are in a position to wonder whether it obtains. The condition is therefore not luminous.⁸

Williamson's expanded presentation of the anti-luminosity argument takes the form of a *reductio* on the assumption that *feeling cold* is luminous (call this the "cold case"). Williamson constructs a hypothetical scenario in which one feels freezing cold at dawn and by noon feels hot. In this scenario the changes occur so gradually that one is not aware of any change over one millisecond.⁹ On the assumption that feeling cold is luminous, whenever one reflects on whether one feels cold and one *does* feel cold then one knows that one feels cold. As Williamson sets up the case, one always does what one can to determine whether one feels cold. So, given the luminosity assumption, if one feels cold then one knows that one feels cold. But Williamson also argues that if one knows one feels cold at some time in this interval, then a millisecond later one feels cold. Consequently, if at some time t_i one feels cold, then one knows one feels cold at t_i and, by the previous principle, one feels cold at t_{i+1} . The trouble is that this implies, contrary to the initial assumption, that one feels cold at noon.

Williamson's argument rests on two principles: the luminosity claim and a margin of error principle. The specific margin of error principle he uses for the cold case is,

(I₁) If in α_i one knows that one feels cold, then in α_{i+1} one feels cold.

As Williamson is careful to note, (I₁) is not a general principle about feeling cold. It is merely a description of a stage in the specific process given in the above scenario.¹⁰ Williamson motivates this claim by the following:

Consider a time t_i between t_0 [dawn] and t_n [noon], and suppose that at t_i one knows that one feels cold. Thus one is at least reasonably confident that one feels cold, for otherwise one would not know. Moreover, this confidence must be reliably based, for otherwise one would still not *know* that one feels cold. Now at t_{i+1} one is almost equally confident that one feels cold, by the description of the case. So if one does not feel cold at t_{i+1} , then one's confidence at t_i that one feels cold is not reliably based, for one's almost equal confidence on a similar basis a millisecond later that one felt cold is mistaken One's confidence at t_i was reliably based in the way required for knowledge only if one feels cold at t_{i+1} .¹¹

As mentioned above, this reasoning reflects the thought that knowledge requires a margin of error.¹² If one knows that p in some case α then in a very close case, α' , p is true. The key intuition undergirding this requirement is the impossibility of a pair of cases: (case 1) one knows that p in α and (case 2) one falsely believes that p in α' where α' is very similar to α . As this principle applies to the luminosity claim, it amounts to the idea that a luminous condition "obtains in any case close enough to the cases in which it obtains."¹³ Or, to put the idea differently, a luminous condition must have recognizable boundaries, i.e., token luminous states are clearly distinct from token nonluminous states.

While Williamson famously claims that we are cognitively homeless, he surprisingly leaves open the possibility that there is some kind of habitat for humanity (albeit a downsized domicile). Granted, at times he seems to dismiss luminous conditions as trivial. In Williamson's own words, "Luminous conditions are curiosities. Far from forming

a cognitive home, they are remote from our ordinary interests.”¹⁴ At other times, though, he carves out a space for some interesting luminous conditions. For example, consider the following discussion:

A condition that obtains in no case, the impossible condition, is automatically luminous; [it] holds vacuously. Is a condition that obtains in every case, the necessary condition, luminous too? It is luminous *as presented in a simple tautological guise*, if cases are restricted to those in which the subject has the concepts to formulate the tautology. It is not luminous as presented in the guise of an a posteriori necessity, or an unproved mathematical truth, or if the cases include some in which one lacks appropriate concepts.¹⁵

In this passage he seems open to the possibility that certain mathematical or logical truths are luminous *if presented in a simple tautological guise*. Unproved mathematical truths would thus presumably not count as luminous because, without the proof, one cannot see *why* they are truths (so they do not appear as tautological). Similarly, even mathematical (or presumably logical) truths that are supported by complicated proofs would not be luminous because they cannot be presented in a *simple* tautological guise. Granted, as Williamson defines it, luminosity is a property of conditions.¹⁶ But in this passage Williamson claims that the necessary condition is luminous if presented in a simple *tautological* guise, assuming the subject possesses the concepts to formulate the tautology. Tautologies are truths and tautologies incorporating different concepts specify different propositions. So it seems that (following Williamson) we can at least speak loosely of propositions as luminous. The idea would be that a luminous proposition is one that is “presented in a simple tautological guise.” Because “being presented in a simple tautological guise” is a condition that obtains in some cases and fails to obtain in other cases, we can consider whether this

condition is luminous. If it is not luminous, then, we contend, the proposition under consideration is not luminous. Thus, the door is opened to continue a new anti-luminosity argument that even necessary truths accessible via a simple tautological guise are not luminous. Interestingly enough, centuries earlier Hume employed astonishingly similar reasoning to contend that there are no such truths. Even truths dressed in a simple tautological guise provide no refuge. So Hume is no downsizer; he is a true home wrecker. We turn to an examination of Hume’s argument in the next section.

II. HUME’S HOME WRECKING ARGUMENT

According to Hume, “all knowledge degenerates into probability” (T 1.4.1, 180).¹⁷ We shall argue that the reasoning behind this claim closely resembles Williamson’s anti-luminosity reasoning. To see how, we should first note that just as Williamson characterizes luminosity in terms of *guaranteed* access, Hume depicts knowledge as involving a type of *certainty*. To be sure, Hume and Williamson do not agree about the nature of knowledge. Hume thinks it involves *certainty*; Williamson does not. This difference, however, is not relevant to our claim that they use strikingly similar arguments to undermine the idea of a cognitive home that consists of some exalted epistemic states.

To explain Hume’s argument that knowledge degenerates into probability, we begin by discussing Hume’s use of the term “knowledge.” Hume uses it in a host of different ways in different contexts; yet the most explicit treatment of knowledge, which links knowledge and certainty, appears in his *A Treatise of Human Nature* in a section titled “Of Knowledge,” in which he claims that “there . . . [are] four [philosophical relations], which depending solely upon ideas, can be the objects of *knowledge and certainty* [emphasis added]. These four are *resemblance*,

contrariety, degrees in quality, and proportions in quantity or number” (T 1.3.1.2, 70). Hume explicitly ties together knowledge and certainty in other contexts as well:

By knowledge, I mean the assurance arising from the comparison of ideas. By proofs, those arguments, which are deriv'd from the relation of cause and effect, and which are entirely free from doubt and uncertainty. By probability, that evidence, which is still attended with uncertainty. (T 1.3.11.2, 124)

Note that for Hume, knowledge and probability are opposed because knowledge is an assurance that *excludes* doubt and uncertainty while probability, by its very nature, *includes* doubt and uncertainty. Moreover, the certainty that is appropriate for knowledge is restricted to relations of ideas, which give us access to the necessary truths of math, logic, and geometry. Hume makes this explicit in the following passage:

All the objects of human reason or enquiry may naturally be divided into two kinds, to wit, *Relations of Ideas*, and *Matters of Fact*. Of the first kind are the sciences of Geometry, Algebra, and Arithmetic; and in short, every affirmation, which is either *intuitively or demonstratively certain* [emphasis added]. *That the square of the hypotenuse is equal to the squares of two sides*, is a proposition, which expresses a relation between these figures. *That three times five is equal to half of thirty*, expresses a relation between these numbers. Propositions of this kind are discoverable by the mere operation of thought, without dependence on what is anywhere existent in the universe. Though there never were a circle or triangle in nature, the truths demonstrated by Euclid, would for ever retain their *certainty* [emphasis added].¹⁸

Hume's definition of knowledge does not of course deny that one can have mistaken mathematical or geometrical beliefs. But as he conceives of knowledge with respect to simple beliefs of this kind, such as *the square of the hypotenuse is equal to the squares of two sides*, one should always be in a position

to know whether or not they are true if one pays sufficient attention to the appropriate comparison of ideas. So this definition of knowledge seems to strongly imply that simple necessary truths are luminous if presented in a simple tautological guise (as Williamson would put it).

With these preliminaries in hand, we can turn to Hume's attack on certainty:

There is no Algebraist nor Mathematician so expert in his science, as to place entire confidence in any truth immediately upon his discovery of it, or regard it as any thing, but a mere probability. Every time he runs over his proofs, his confidence encreases; but still more by the approbation of his friends; and is rais'd to its utmost perfection by the universal assent and applauses of the learned world. Now 'tis evident, that this gradual encrease of assurance is nothing but the addition of new probabilities, and is deriv'd from the constant union of causes and effects, according to past experience and observation.

In accmpts of any length or importance, Merchants seldom trust to the infallible certainty of numbers for their security; but by the artificial structure of the accmpts, produce a probability beyond what is deriv'd from the skill and experience of the accmptant. For that is plainly of itself some degree of probability; tho' uncertain and variable, according to the degrees of his experience and length of the accmpt (T 1.4.1.2–3, 180–181).

In short, for Hume there is no certainty in math. The proofs only provide probability, as the practice of mathematicians reveals. After all, the very process of proof checking is tantamount to an admission that, no matter how carefully one attends to a proof, there is no guarantee that one has it right.

Of course, some may protest that the focus on the uncertainty of proofs obscures the transparency of the simple mathematical truths upon which the proofs are based. Robert Fogelin, for example, attacks Hume on just this point: “[Hume] ignores the possibility that our grasp of a simple ‘proposi-

tion concerning numbers' may not involve calculation at all but, instead, an immediate insight. In this way, the fallibility that infects our calculations (and demonstrations) need not touch our intuitive understanding."¹⁹ Fogelin is suggesting that simple mathematical statements grasped as an "immediate insight" are luminous. So we presumably still have some semblance of a cognitive home left standing.

Curiously, though, Fogelin seems to have overlooked Hume's anti-luminosity argument that appears immediately after the text quoted above:

Now as none will maintain, that our *assurance* in a long numeration exceeds probability, I may safely affirm, that there scarce is any proposition concerning numbers, of which we can have a *fuller security*. For 'tis easily possible by gradually diminishing the numbers, to reduce the longest series of addition to the most simple question, which can be form'd, to an addition of two single numbers; and upon this supposition we shall find it impracticable to *shew the precise limits of knowledge and of probability*, or discover that particular number, at which the one ends and the other begins. But *knowledge and probability are of such contrary and disagreeing natures, that they cannot well run insensibly into each other*, and that because they will not divide, but must be either entirely present, or entirely absent. Besides, if any single addition were *certain*, every one wou'd be so, and consequently the whole or total sum; unless the whole can be different from all its parts (T 1.4.1.3, 181; emphases added).

Here Hume is clearly saying that our powers of discrimination are limited even when it comes to necessary truths. Moreover, Hume is explicitly reasoning about epistemic properties: knowledge/certainty and probability. Hume is not constructing a simple—i.e., non-epistemic—sorites argument. Rather, Hume's purpose is to show that certainty is not to be had even in its most comfortable home, i.e., simple mathematical truths. We can think of

Hume as reducing to absurdity the assumption that the condition "being grasped with immediate insight" (or "appearing in a simple tautological guise") provides certainty (or "is luminous"). Flipping the order of Hume's presentation we begin with a case of simple addition that is grasped with immediate insight and end with a long numeration (i.e., a complex calculation) that is not grasped with immediate insight. If the condition "being grasped with immediate insight" genuinely provided certainty, then the next claim in the series is grasped with immediate insight. But then, given the assumption that this condition provides certainty, the subsequent claim in the series is grasped with immediate insight, and so on. In this way we reach Hume's claim that "if any single addition were certain, every one wou'd be so."²⁰ But the assumption that this condition provides certainty leads to the absurdity that a "long numeration" is grasped with immediate insight. Consequently, the condition "being grasped with immediate insight" does not provide certainty.

We can make the structure of Hume's reasoning more explicit to permit a closer comparison with Williamson's anti-luminosity argument. We begin by ordering a series of additions beginning with additions that are intuitively grasped and ending with additions that are not intuitively grasped. At the beginning of this series we have

- a. $1+2=3$
- b. $1+2+1=4$
- c. $1+2+2=5,$

and at the end of the series we have

- n-2. $1+2+3+5+ \dots + 4+1=117893$
- n-1. $1+2+3+5+ \dots + 4+2=117894$
- n. $1+2+3+5+ \dots + 4+3=117895.$ ²¹

We shall use "k" to indicate an arbitrary instance in this series and "k+1" to select the next instance in this series. We put Hume's argument thusly:

1. One intuitively grasps that $1+2=3$.

2. Assume that intuitive grasping confers certainty. Then for any k , if one intuitively grasps k then one intuitively grasps $k+1$.

So,

3. One intuitively grasps $1+2+1=4$. [universal instantiation (UI) and modus ponens (MP) 1&2]
[repeated applications of UI & MP]

So,

- C. One intuitively grasps $1+2+3+5+ \dots + 4+3=117895$.

The claim in (2) that *for any k , if one intuitively grasps k then one intuitively grasps $k+1$* parallels the combination of Williamson's definition of luminosity and (I_i) . Recall that a condition C is luminous if and only if for every case α if in α one is in C then in α one is in a position to know that one is in C . As Williamson explains it, if one is in a position to know p and one does everything one can to determine whether p then one knows p .²² Thus, in the special case Williamson considers in which one does everything one can to determine whether C obtains, the luminosity assumption may be stated as *whenever (in every case α) one is in C one knows that one is in C* .

Recall that (I_i) states that "if in α_i one knows that one feels cold, then in α_{i+1} one feels cold." To tie (I_i) to the general form of luminosity above, we can generalize (I_i) to the following: "if in α_i one knows that one is in C , then in α_{i+1} one is in C ." Putting these together we get

- $(L+I_i)$ For every case α , if in α one is in C then in α_{i+1} one is in C .

The principle adverted to in Hume's argument in premise 2 closely resembles $(L+I_i)$. One could factorize Hume's principle in premise (2) into separate principles resembling the luminosity claim and (I_i) , but to do so would involve us in significant Hume

interpretation and also distract from our primary objective to emphasize the *core skeptical predicament* in both Hume's and Williamson's reasoning.

Before we turn to the core skeptical predicament, we need to make sure that we do not lose sight of the forest in the course of closely inspecting the trees. So let us step back and examine the broad similarities between Hume and Williamson by focusing on Williamson's own statement of the general anti-luminosity argument:

The strategy is to construct a sorites series between a case in which the condition clearly obtains and one in which it clearly fails to obtain, and then to argue that such a series cannot exist for a luminous condition. Luminosity must fail close to the boundary between cases where the condition obtains and cases where it does not, just on the obtaining side.²³

We can use this summary to describe Hume's strategy to deny that there is certainty in math. In Williamsonian terms, Hume's strategy is this:

The strategy is to construct a sorites series between a case in which the condition *intuitively grasping a mathematical claim* clearly obtains and one in which it clearly fails to obtain, and then to argue that such a series cannot exist for an *epistemically certain* condition. *Certainty* must fail close to the boundary between cases where the condition *intuitively grasping a mathematical claim* obtains and cases where it does not, just on the obtaining side.

Hume is setting up an epistemic sorites series to reduce to absurdity the thought that the condition of intuitively grasping a mathematical claim provides certainty. Simple sums are grasped in this way; yet over time, given small changes, we reach sums that are not intuitively grasped. But if the condition of intuitively grasping a mathematical claim provides certainty, then the next claim in the series is intuitively grasped; and thus given that this condition is certain, the next claim is

intuitively grasped. But eventually this lands in the absurdity that complex sums are intuitively grasped. Whether or not one accepts all the premises of this argument, the *structure* of Hume's reasoning is strikingly parallel to Williamson's reasoning. We turn now to examine the core skeptical problem.²⁴

III. THE QUARANTINE PROBLEM

At least some parallels between Williamson's reasoning and Hume's should be fairly obvious. Let us compare three core ideas from their texts that constitute what we shall call *the quarantine problem*.

We begin with an informal presentation of the problem. Because error and uncertainty are seemingly ubiquitous in human experience, our cognitive immune systems have been compromised to the extent that we need a cognitive bubble or home that will inoculate us from the spread of this epistemic pandemic. In other words, we need to quarantine ourselves to avoid these diseases. The three ideas common to Williamson and Hume reveal why it is so difficult to achieve this quarantined state. The first idea is that any exalted epistemic state such as being in a luminous condition or being in a condition that affords certainty is qualitatively different from any other nonexalted epistemic state such as being in a contentful state that tracks the truth or being in a contentful state that is reliably connected to the facts. In other words, exalted epistemic states must be pristine, i.e., not possibly subject to a sorites series from cases in which the exalted state obtains to cases in which the exalted state does not obtain. Call this the *pristine ideal*.

The second idea is that to preserve an exalted epistemic state, there must be an impervious boundary to keep at bay epistemic infection. Because exalted epistemic states are pristine, they must not be linked by a series of almost indistinguishable cases in which the exalted state clearly obtains and in

which it clearly does not obtain. Call this the *inoculation condition*. Finally, the third idea is that our cognitive discriminatory powers are so weak that we have only permeable boundaries. This is to say that for any condition of interest, it is linked by a series of almost identical cases from the good cases to the bad cases. Or, to put the idea differently, any putative exalted epistemic state can be shown to bleed into a nonexalted state. Call this the *infestation claim*. Given the pristine ideal and the inoculation condition, if there are luminous/certain states, then there is a recognizable boundary that separates them from less exalted states. But given the infestation claim, no such boundary or limit exists. This is the quarantine problem. We turn now to a more explicit accounting of the problem.

First, let us examine the pristine ideal. Here is the thought as articulated by Hume:

But knowledge and probability are of such contrary and disagreeing natures, that they cannot well run insensibly into each other, and that because they will not divide, but *must be either entirely present, or entirely absent*. (T 1.4.1.3, 181; emphasis added).

And here is the same thought from Williamson:

a luminous condition obtains in any case close enough to cases in which it obtains. What counts as close enough depends on our powers of discrimination. Since they are finite, a luminous condition spreads uncontrollably through conceptual space, overflowing all boundaries. *It obtains everywhere or nowhere*, at least where we are in a position to wonder whether it obtains. (2000, p. 13; emphasis added)

Both Williamson and Hume agree that luminosity and certainty are of such a nature that these features do not come in degrees. Any slight degradation of either feature would destroy that feature entirely. In this regard, luminosity/certainty is more like pregnancy than baldness. Of course, cognitive states potentially possess a variety of good-making

epistemic properties, not just certainty and luminosity. Such properties include incorrigibility, indubitability, being based on evidence, being reliably produced, being caused by the appropriate fact, tracking the truth, and so on. But not all good-making epistemic properties will make a cognitive state epistemically exalted. More precisely, a cognitive state *S* is epistemically exalted if and only if *S* possesses a good-making epistemic property *P*, where *S*'s having *P* makes it the case that *S* is qualitatively distinct from any other state in which *P* fails to obtain. The state of having a belief that is reliably produced, thus, is not an exalted epistemic state because this state is not qualitatively distinct from any other state that is not reliably produced. The state of being in a luminous condition is, by Williamson's own definition, the state of being in a condition that, with sufficient effort, one can always know that one is in it. Consequently, if one is in a luminous condition, then the corresponding state is qualitatively distinct from any state in which the luminous condition fails to obtain. Williamson's cold case illustrates that this fails for the condition *feeling cold*. Likewise, any state that possesses the good-making property of certainty (more specifically, the content of the state is epistemically certain) is qualitatively distinct from any state that fails to possess that property because one can always tell if there is any doubt whatsoever present.

Now let us discuss the inoculation condition. Assuming that we want pristine epistemic states, we need to find a way to preserve such purity. The qualitative identifiability of pristine epistemic states means that when we run up against the border of exalted states and the nonexalted states, we should be able to recognize the boundary between the two sides; there will be no slow fade from one to the other. So to show that we are in an exalted state, there must be a precise boundary that separates the exalted states from the less exalted states.

Presupposed in the texts quoted above is the inoculation condition, i.e., the idea that tokens of an alleged luminous state-type must be sharply distinguished from tokens of a nonluminous state type (what we shall call "murky" states). As Williamson says, a sorites series cannot exist for a luminous condition.²⁵ Moreover, he writes, "We may conjecture that, for any condition *C*, if one can move gradually to cases in which *C* obtains from cases in which *C* does not obtain, while considering *C* throughout, then *C* is not luminous."²⁶ Similarly, as Hume says, "knowledge and probability . . . cannot well run insensibly into each other." Whether we consider necessary truths or phenomenal truths, everyone will agree that *even if* some instances of these truths are known via a luminous condition, other instances are not. But if some instances are known via a luminous condition, then there should be some identifiable boundary or limit between cases in which the luminous condition obtains and cases in which it fails to obtain. After all, if a candidate luminous condition obtains in every close case to which it obtains, then there must be a gaping gulf somewhere to stop the luminosity from spreading uncontrollably to all cases. In other words, if there were a core cognitive home comprised of luminous conditions, the transition from a luminous condition to a murky condition would be stark and sudden because there is a qualitative, not quantitative, difference between the two sides.

We can now briefly state the infestation claim. Exhibit Hume:

For 'tis easily possible by *gradually diminishing* the numbers, to reduce the longest series of addition to the most simple question, which can be form'd, to an addition of two single numbers; and upon this supposition we shall find it *impracticable to shew the precise limits of knowledge and of probability*, or discover that particular number, at which the one ends

and the other begins. (T 1.4.1.3, 181; emphases added).

Witness Williamson:

For almost any condition of interest, the cases in which it obtains are linked by a series of *imperceptible gradations* to cases in which it does not obtain, where at every step we are in a position to wonder whether it obtains. (2000, p. 13; emphasis added)

In short, Williamson and Hume both simply deny that there is a qualitatively identifiable boundary that separates exalted states from nonexalted states.

IV. DIAGNOSES

By highlighting this problem we see the essential reasoning behind Williamson's anti-luminosity argument. To illustrate this reasoning further, we categorize recent responses to Williamson's anti-luminosity argument in terms of the quarantine problem. More specifically, we can classify rejoinders to Williamson's anti-luminosity argument in two general categories: denials of the safety principle and refortifications of the luminosity claim.²⁷ In our terminology, these responses can be organized as follows: denials of the inoculation condition and denials of the infestation claim. We briefly discuss both responses.

First, let us consider the relevance of denials of safety to the quarantine problem. As we noted above, a crucial premise in Williamson's anti-luminosity argument is (I₁), which reflects the thought that knowledge requires a margin of error. Williamson unpacks this margin of error principle in terms of a safety condition on knowledge. Knowledge requires safe belief, i.e., one does not know that p if there is a very close case to the actual case of knowledge in which one falsely believes that p. Several philosophers have replied to Williamson by arguing that knowledge does not require safe belief. For instance, Neta and Rohrbaugh take their "aim to defend the luminosity thesis

against Williamson's argument."²⁸ They do so by arguing that "the safety requirement is mistaken."²⁹ Although Williamson's premise (I₁) is motivated by an appeal to safety, our formulation of the quarantine problem does not explicitly mention a safety requirement for knowledge. The closest idea to a safety requirement in the quarantine problem is the inoculation condition which states that *to preserve epistemically exalted states, there must be a sharp boundary between such states and the nonexalted states*. The focus of the inoculation condition is to maintain an exalted epistemic state, of which luminosity is a species; it is not a general thesis about knowledge. So a denial of safety is relevant to the quarantine problem only if it gives us a reason to doubt the inoculation condition.

Even Neta and Rohrbaugh admit that a central premise of Williamson's reasoning, the margin of error principle encapsulated by (I₁), need not assume the safety requirement: "[I₁] could be true even if the safety requirement is false. Williamson could therefore have tried to defend [(I₁)] even without adhering to the safety requirement. While he could have tried to do this, he didn't. We stick to examining his actual argument, partly because we suspect that the safety requirement is what really animates Williamson's overall epistemological project."³⁰ This admission shows that a safety requirement on knowledge is not necessarily the fundamental issue in Williamson's anti-luminosity argument. We agree. The foundational issue is the need to inoculate ourselves from epistemic infection.

But how strong of a shot do we need? One might try to argue that a denial of safety secures luminous knowledge without requiring sharp boundaries between exalted states and nonexalted states. The idea is that a denial of safety is consistent with the existence of luminous conditions as defined above. *Whenever* one is in a luminous condition, one is in a position to know that the condition obtains.

As this applies to the quarantine problem, it is consistent with the luminosity of, say, *feeling cold*, that there is a series of imperceptible changes from feeling cold to feeling hot. One is always in a position to know that one feels cold right up to the border; a millisecond later one does not feel cold and hence one is not in a position to know this. Moreover, the denier of safety holds that even though one may falsely believe that one feels cold in this case, this is not inconsistent with one's *knowing* that one feels cold in the case that obtained a millisecond earlier. Consequently, a denial of safety also undermines the quarantine problem because it may be thought to imply a denial of the inoculation condition.³¹

While this is a logically consistent view to take, we find it implausible. Whatever one may think of safety in general, (I₁) seems obviously true. Consider the following passage from Williamson:

We need good judgement of particular cases. Indeed, even when we can appeal to rigorous rules, they only postpone the moment at which we must apply concepts in particular cases on the basis of good judgement. We cannot put it off indefinitely. . . . The argument for (I₁) appeals to such judgement. The intuitive idea is that if one believes outright to some degree that a condition C obtains, when it in fact does, and at a very slightly later time one believes outright on a very similar basis to a very slightly lower degree that C obtains, when it in fact does not, then one's earlier belief is not reliable enough to constitute knowledge.³²

Although we agree with Williamson's basic point about (I₁), we would articulate it in different terms. "Luminous" knowledge of our phenomenal states would be of such a kind that one could not lose it by undergoing an almost instantaneous, imperceptible change. But a denial of safety in this context would imply that one could lose "luminous" knowledge in such circumstances. This is incredibly odd; how could one be in one's cognitive home—in which one enjoys "*perfect acces-*

sibility" and in which "mistakes are *always* rectifiable"³³—and yet undergo an *imperceptible* change that deprives us of these exalted epistemic virtues? Moreover, the fact that Hume makes a similar judgment in a different historical context without endorsing anything like a safety principle lends credence to the plausibility of the inoculation condition and the truth of (I₁).³⁴ In sum, then, while safety may not be necessary for knowledge in some cases, we see absolutely no reason to think that this fact affects (I₁). Accordingly, the inoculation condition is not touched by a denial of safety.

The second main response to Williamson's anti-luminosity argument is to refortify the luminosity claim to ensure that it is not subject to a sorites series. The basic thought is that a luminous condition is one that lacks borderline cases, i.e., a properly luminous condition lacks a series of *imperceptible* changes from the luminous condition to a murky condition. This response maps onto a denial of the infestation claim.

Earl Conee proposes this type of strategy in response to Williamson's argument.³⁵ He considers replacing the original luminosity principle with the following principle of central luminosity:

CL: If S is in an exemplary case of C then S is in a position [to know] that S is in C.³⁶

Conee remarks that the idea is to restrict the condition to "central, clear-cut, exemplary instances of the condition."³⁷ The thought is that if one feels an *intense pain*, then it is luminous to one that one is in pain.

A telling problem with this strategy is that central, clear-cut, and exemplary instances of some condition still admit of borderline cases. Take a case of an intense pain that begins to fade into a dull pain. We shall eventually reach a case in this gradual progression when it is unclear whether this is an intense pain. Consequently this strategy does not seem promising to a friend of luminosity.

In fact, when Conee remarks on a similar principle of luminosity, he seems to concede this point. To elaborate, he considers the following principle:

SP. Necessarily, if S feels severe pain, then S is in a position to know that S feels pain.

While SP appears to countenance only the type of “exemplary” cases that admit of no borders, Conee (2005) concedes that “SP does not straightforwardly offer any more promising candidate for luminosity, because the conditions involved are feeling severe pain, and feeling pain. Each of those seem to allow marginal versions.”³⁸ We agree. What’s more, it is difficult to imagine conditions that preclude marginal instances. In light of this, it seems incumbent on those who deny the infestation claim to specify precisely where the boundaries separate the exalted states from the nonexalted ones.³⁹

CONCLUSION

What is the upshot of this discussion? As we have seen, the temptation to grasp at some kind of exalted epistemic state persists. Williamson apparently thinks that there are defenders of luminosity out there. Thus, he attacks “the myth of epistemic transparency.”⁴⁰ The burgeoning discussion of his anti-luminosity argument suggests that there are still some defenders of luminosity; otherwise,

most philosophers would ask: who believes in perfect epistemic accessibility anyway?⁴¹ Even more strikingly, Williamson carves out a proper subset of necessary truths that are luminous if they appear in a simple tautological guise. But we should resist this recurring temptation. In comparing his argument with Hume’s we have discovered the powerful quarantine problem, which has plagued the search for exalted epistemic states at least since the time of Hume. More specifically, we have contended that the quarantine problem shows that we lack certain and luminous knowledge because such exalted epistemic states would be qualitatively different than other such epistemic states. As such, if we were able to achieve such exalted states, then there would be a precise boundary that demarcates them from the nonexalted states. Alas, we could find no such borders, either in the responses to Williamson or in his appeal to necessary truths that appear in a simple tautological guise. This result does not, of course, demonstrate that we lack fallibilistic knowledge; but it does show that we have no reason to give in to the lingering epistemic temptation to postulate a realm of unveiled truths. To the extent that we have knowledge, it is deeply fallibilistic.

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NOTES

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1. Frances (2005), vii.
2. See Williamson (2000), chap. 4.
3. *Ibid.*, 16, 93.
4. See, e.g., Brueckner and Fiocco (2002), Neta and Rohrbaugh (2004), Weatherson (2004), Conee (2005), Hawthorne (2005), Reed (2006), Blackson (2007), Wong (2008), and Fumerton (2009).
5. Williamson (2000), 93, emphasis added; see also Williamson (2005a), 434.
6. Williamson (2000), 94.

7. *Ibid.*, 95, with minor changes; emphasis added.
8. *Ibid.*, 13.
9. *Ibid.*, 97.
10. See Williamson (2000), 97.
11. *Ibid.*, 97
12. See Williamson (2000), chap. 5.
13. *Ibid.*, 13
14. *Ibid.*, 109.
15. *Ibid.*, 107–8, emphasis added.
16. *Ibid.*, 95
17. All references to the *Treatise* come in two parts. The first is a reference to a paragraph in the 2000 edition, edited by D. F. and M. J. Norton; the second is a page reference to the Selby-Bigge edition, revised by P. H. Nidditich (Hume 1990). So, for example, a reference to Hume’s famous is/ought paragraph would be (T 3.1.1.27, 469–470).
18. Hume (2000b), 108.
19. Fogelin (1985), 15.
20. Compare this with Williamson’s remark that “a luminous condition spreads uncontrollably through conceptual space, overflowing all boundaries. It obtains everywhere or nowhere” (Williamson [2000], 13).
21. We have not used any formula to generate this series. Rather, we started with simple additions and ended up with complex additions by adding 1 and by occasionally introducing another “+” sign. Thus, the change from (a) to (b) has both of these changes, but the change from (b) to (c) only has the first change. We take this way of generating the series to reflect Hume’s conception of the series. There are different ways of generating a series that equally illustrate Hume’s point. We could restrict the series to two arguments x, y for the plus function and alternatively increase x and y by 1 until we get sums like $9754+9753=19507$. We could thus have a finite series starting with $1+1=2$, which is intuitively grasped and ending with $9754+9753=19507$, which is not intuitively grasped.
22. Williamson (2000), 95.
23. Williamson (2005c), 230.
24. Juxtaposing Hume’s reasoning with Williamson’s helps to solve a puzzle about Hume’s wording. For if indeed “knowledge and probability are of such contrary and disagreeing natures, that they cannot well run insensibly into each other,” then how can Hume claim that “all knowledge resolves into probability”? Isn’t this precluded by the very nature of knowledge and probability? (See Owen [1999] for a discussion of this issue.) Consider in this connection how Williamson starts with some supposedly luminous condition and then, by a series of gradual changes, shows that at the margins, the luminous condition is epistemically indistinguishable from a murky (i.e., nonluminous) condition. Because luminous conditions and murky conditions have such contrary and disagreeing natures, they cannot run insensibly into each other. Therefore, Williamson concludes that there are no (nontrivial) luminous conditions. In other words, Williamson is not arguing that luminous conditions degenerate into murky ones. Rather, he is contending that *allegedly* luminous conditions clearly dissolve into murky ones; so there are no such luminous conditions. By the same token, Hume is arguing that *alleged* knowledge claims resolve into probability claims. The uncertainty of beliefs affects even what some *call* knowledge. For more on this interpretive puzzle, see Meeker (2007).

25. Discussing “a sorites series between a case in which the condition clearly obtains and one in which it clearly fails to obtain,” Williamson claims that “such a series *cannot* exist for a luminous condition” (see Williamson [2005c], 230; emphasis added).
26. Williamson (2000), 109.
27. For denials of the safety principle, see Brueckner and Fiocco (2002) and Neta and Rohrbaugh (2004). Conee (2005) refortifies the luminosity claim. Hawthorne (2005) seems to provide a similar refortification strategy, though see our final note for a brief discussion.
28. Neta and Rohrbaugh (2004), 397.
29. *Ibid.* Brueckner and Fiocco (2002) offer a similar strategy. They summarize their results as follows: “The objection we have made . . . shows not only that Williamson’s anti-luminosity argument is unsuccessful, but also that the safety condition . . . is not a necessary condition for knowledge” (p. 291). Brueckner and Fiocco also discuss Williamson’s invocation of “reliability” in defense of his argument, as does Blackson (2007). The moral that we shall draw from our discussion of safety shall apply equally well to these discussions of reliability.
30. Neta and Rohrbaugh (2004), 405n3.
31. E-mail from Ram Neta to author, July 2008.
32. Williamson (2000), 101.
33. *Ibid.*, 16, 94. Emphases in original.
34. See our discussion of Hume’s argument in section 2, specifically premise 2 of the reconstructed argument.
35. Conee (2005).
36. *Ibid.*, 450.
37. *Ibid.*
38. P. 449n19.
39. Conee takes a stab at providing a “better candidate” for a centrally luminous state: “C”. feeling pain and consciously attributing to oneself being in severe pain” (p. 450n19). Although Conee claims that it is “not clear that there are marginal cases of C” (*ibid.*), Williamson quickly provides examples to the contrary (2005b, p. 474).
40. Williamson (2000), 11.
41. Reed (2006) defends a weakly luminous condition that effectively does this. While in a (strongly) luminous condition mistakes are *always* rectifiable, in a weakly “luminous” condition we can claim that “although some mistakes may be rectified, none are in principle always rectifiable” (p. 308n9). Fumerton (2009) endorses Reed’s response and defends only the claim that our mental life constitutes a cognitive home “because we *sometimes* have a kind of justification for believing truths about such states that is *better* than the justification we have for believing other empirical truths” (p. 73). It is unclear whether Hawthorne’s (2005) appeal to “cozy” conditions amounts to a weakening of luminosity (in line with Reed) or an attempt to establish impervious borders for a type of luminous knowledge (in line with Conee).

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