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# CORNEA, CARNAP, AND CURRENT CLOSURE BEFUDDLEMENT

Stephen J. Wykstra

Graham and Maitzen think my CORNEA principle is in trouble because it entails “intolerable violations of closure under known entailment.” I argue that the trouble arises from current befuddlement about closure itself, and that a distinction drawn by Rudolph Carnap, suitably extended, shows how closure, when properly understood, works in tandem with CORNEA. CORNEA does not obey Closure because it shouldn’t: it applies to “dynamic” epistemic operators, whereas closure principles hold only for “static” ones. What the authors see as an intolerable vice of CORNEA is actually a virtue, helping us see what closure principles should—and shouldn’t—themselves be about.

Over the years, CORNEA—my “Condition of Reasonable Epistemic Access”—has gotten a mixed reception. Graham and Maitzen<sup>1</sup> (hereafter “the authors”) find CORNEA in deep trouble: it entails, they think, “intolerable violations of closure under known entailment” (hereafter just “Closure”). I agree that CORNEA doesn’t obey Closure. But I don’t agree that this is trouble for CORNEA, and welcome this chance to say why.<sup>2</sup>

Though the authors don’t mention it, Closure has itself been under a cloud of befuddlement since the mid-1970s.<sup>3</sup> John Hawthorne notes that many now embrace “the idea that no version of the closure principle is true”—to the dismay of others like Richard Feldman, who finds this “among the least plausible ideas to gain currency in epistemology in recent years.”<sup>4</sup> In large part, the cloud over Closure arises because, as many see it, unpalatable skeptical consequences follow from Closure combined with other principles that are judged even more compelling than Closure. And chief among these other principles, we will see, is a version of what I have called CORNEA.

In saying this, my aim isn’t to shift the trouble from CORNEA to Closure. I’m a fan of Closure, and want to help both CORNEA *and* Closure stay out of trouble. To do this, I want here to extend a distinction made by Rudolph Carnap. The “Carnapian Distinction,” as I’ll call it, was built into CORNEA from the outset, but its relevance to Closure seems to me underappreciated. I begin, in sections 1 through 3, by giving a wider view of CORNEA, Closure, and their apparent troubles. In sections 4 through 7, I explain Carnap’s distinction and show how extending it helps relieve these troubles. Section 8 locates two key errors in the authors’ critique of CORNEA.



### 1. What CORNEA Says: A Wider View

CORNEA emerged in response to William Rowe's inductive arguments from evil. Rowe begins from sufferings for which we *see no* good sufficient to justify the theistic God in allowing this suffering; Rowe then urges that such data—our *seeing no* such good for select sufferings—is<sup>5</sup> strong inductive support for there *being no* such good (and hence, by a short further step, for there being no God). Initially, Rowe put this in the appears-idiom: by virtue of our seeing no good for the sufferings, he said, "it appears that there is no such good." CORNEA thus was also initially put in the appears-idiom. Later Rowe morphed to a probabilistic idiom; CORNEA morphed to keep up. The authors focus on CORNEA in its appears-version, but the same issues arise for later versions.

On all versions, the key idea behind CORNEA is a proposed test for whether some alleged evidence E seriously "supports"—in a sense to be clarified presently—some hypothesis H. The test is this: ask whether, if H were false, E is still pretty much what one should expect. If the answer is "Yes," then E can't seriously support H. For example, let H be the hypothesis that there are no HIV viruses on a specific hypodermic needle about to go into your arm, and let E be the datum that on close visual inspection, the doctor sees no such viruses on the needle. Does his seeing no such viruses seriously support the claim that there are none? Using the test, we ask: "if H were false (if there *were* viruses present), is E (your seeing none) still pretty much expectable?" The answer is "Yes"; the idea behind CORNEA is that E can't then seriously support H. And here this result seems just right.

This requirement on the supports-relation is the key idea *behind* CORNEA. But CORNEA itself proposes a higher-level test-condition—a requirement on rational (justified, entitled) *claims about* the supports-relation. The condition is this: for some human H (Henry, let's say) to be entitled<sup>6</sup> to *claim* that new evidence E seriously supports H, it must be reasonable for Henry to believe (should he consider the matter) that the answer to the test question is "No." Let's put this in the epistemic "appears" idiom (as Rowe initially put his case). Suppose the doctor inspects the needle and sees no HIV viruses. Is *he*, on the basis of this cognitive situation, entitled to say "It appears that *there are no HIV viruses on this needle*"? CORNEA says he is entitled to say this only if the following condition is met: that it is reasonable *for him* to believe, given what he has to go on, that if the italicized claim were false (i.e., if there *were* HIV viruses on the needle), his visual data would be different (with respect to the no-see feature) than it is. For a normal doctor this condition is of course not met, so the doctor isn't entitled to the make the appears-claim. Again this result seems just right, and generalizing it gives CORNEA in its official 1984 formulation:<sup>7</sup>

On the basis of cognized situation *s*, human H is entitled to claim "It appears that *p*" only if it is reasonable for H to believe that, given her cognitive faculties and the use she has made of them, if *p* were not the case, *s* would likely be different<sup>8</sup> than it is in some way discernible by her.

It is, as we will see, this 1984 version that the authors indict for “intolerable violations of closure.” But their indictment will apply equally (well or not) to later versions as well.

## 2. Trouble in CORNEA-land

What the authors call “the principle of closure under known entailment” is, as I see it, not so much one principle as a family of principles. Like CORNEA, these too spring from a core intuition: if you are to a certain degree “epistemically well-off” with respect to  $p$ , and you see that  $p$  entails  $q$ , then you are at least equally well-off with respect to  $q$ . Here there are a family of epistemic operators covering aspects of being “epistemically well-off.” Letting “knows\*” represent this family of operators, closure principles thus take roughly<sup>9</sup> the following form:

If Sam knows\* that  $p$ , and Sam knows that  $p$  entails  $q$ , then it is also the case that Sam knows\* that  $q$ .

To bring CORNEA into conflict with Closure, the authors use a brain-in-vat scenario. I will simplify it a bit. Suppose you’ve stayed up late worrying that you might be a brain in a vat. You finally get to sleep, but wake up before dawn still worrying. A glance shows your bedside alarm clock reading “5:59 A.M.”—one minute before you set it to ring. You presently hear a ringing sound, and so have the new evidential input  $E$ :

(E) I am experiencing the familiar sound of my alarm clock ringing.

Now this seems to support the hypothesis

(R) The alarm clock next to my bed is ringing

and CORNEA nicely allows this: after all, if the alarm next to your bed were not ringing, it’s not expectable that you’d be experiencing that familiar ringing sound. The trouble arises because, despite your worries, you also believe:

(~BIV) I’m not an envatted brain wired to a super-sophisticated computer that simulates exactly this familiar ringing sound (along with the rest of my experience of the virtual day to follow).

Here it is crucial to see that BIV is not just a general brain-in-vat hypothesis. It is very specific: your envatted brain is connected to a computer that simulates the *exact phenomenal reality* of your alarm clock ringing (and the rest of your day). Let’s call this the Phat-Vat Hypothesis.<sup>10</sup>

As the authors see it, the Phat Vat hypothesis gets CORNEA in closure trouble on account of three claims. Claim 1 is that, as we have seen,  $R$  (in relation to  $E$ ) *passes* the CORNEA test: CORNEA thus allows that  $E$  *can*<sup>11</sup> seriously support  $R$ . Claim 2 is that ~BIV *flunks* the CORNEA test, for if ~BIV were false (i.e., if you *were* a brain in the *Phat Vat*), your experience would *not* be different than it is. So CORNEA says that the experienced ringing cannot seriously support ~BIV.<sup>12</sup> But—Claim 3— $R$  obviously entails ~BIV (and you see that it does). This gives traction to Closure: if  $E$  supports  $R$ , it must also support ~BIV. CORNEA, the authors think, thus violates Closure.

The violation looks especially egregious in the appears mode. For here CORNEA entails that you can be entitled to say "It appears that my alarm is ringing" even though you are not entitled to say "It appears that I am not a brain in the Phat Vat (hearing a merely virtual alarm)." But how could this be? How could you be entitled to claim that it appears (epistemically) that A, see that A entails<sup>13</sup> B, and yet not be entitled to claim that it appears that B? Indeed, the authors urge that by CORNEA, you can sometimes be entitled to say "It appears that A&B", see that A&B entails B, and yet *not* be entitled to say "It appears that B."<sup>14</sup> Deeming such closure-violations "intolerable," they rhetorically ask:

How could your total evidence support a conjunction while failing to support one of its conjuncts? How could you be evidentially better-off with respect to (p & q) than you are with respect to p?

### 3. Trouble in Closure-land

But, as noted earlier, many these days see Closure itself as in trouble. The trouble has been spotlighted by the rise of contextualism, which seeks to exploit (and relieve) the pressure toward skepticism by scenarios of both the global brain-in-vat sort, and of a more local variety. Reviewing a local scenario will open the territory I want to explore.

Dretske's well-known zebra case is as good as any. You are at the zoo in front of the zebra cage, looking at the striped equine therein. Common sense says that your visual data strongly supports, indeed allows you to know\*:

(Z) The animal in front of me is a zebra.

But (Z) entails, as you see, that

(~PID) The animal is not a donkey cleverly painted in stripes to look like a zebra.

Now if Closure holds, then if on looking at the striped equine in the cage you know\* Z, you also know\* that ~PID. But does your visual data really allow you to know\* that it's not a painted-in-stripes donkey? Many deem Closure here in trouble, for they judge it is clear that your data doesn't allow you to know this.<sup>15</sup> It doesn't, because "after all" (as Stewart Cohen puts it)<sup>16</sup>

*[T]hat's just how it would look if it were a cleverly disguised mule.*

So in the judgment of many, the look of the striped equine *doesn't* enable you to know\* ~PID, because "*that's just how it would look if it were a cleverly disguised mule.*" But if this is a principled judgment, the underlying principle is something like this: the data can't enable you to know it's not an X, if the data is just how it would look if it *were* an X. But this principle is, heaven help us, just a version of CORNEA. From a wider view, then, the trouble which the authors lay at CORNEA's feet is just what leads many to abandon Closure (and what drives yet others into the arms of contextualism).

4. *The Carnapian Distinction*

CORNEA, we've seen, is meant to test claims that some alleged evidence E (our *seeing no* HIV-viruses on the needle) provides serious "rational support" for some hypothesis H (there *being no* HIV viruses on the needle). But what does "rational support" mean here? In first introducing CORNEA (and in later refining it), I distinguished between "weak" and "strong" senses of support, and then noted that both senses are "dynamic," and to be separated from a "static" sense of the term:<sup>17</sup>

Both [strong and weak] senses of 'disconfirms' [and confirms] are dynamic, involving the degree to which the adduced evidence *changes* the likelihood of a claim from its likelihood on our background knowledge, and are thus to be distinguished from the 'static' sense (which Plantinga addresses) of the probability of a claim with respect to the adduced evidence alone.

This dynamic/static distinction was made by Rudolph Carnap within a probabilistic approach to inductive logic.<sup>18</sup> Carnap observed that it is one thing for hypothesis H to *be* (statically) improbable *on* some body of evidence, and quite another thing for H to be rendered improbable *by* some new piece of evidence. Suppose that we are playing poker, that I am dealt a hand, and that I look at it and see that it contains no aces.<sup>19</sup> *On* my evidence, it is highly improbable that (H) you have four aces. In the static sense of "supports," my evidence supports this H. But that you have four aces has not, *by* my new evidence (seeing I hold no aces), *become* improbable or less probable. To the contrary, my seeing that I hold no aces *raises* the probability that you hold four aces: it renders this *more* likely than before. In the dynamic sense of supports (or confirms), my new evidence supports H: it changes its probability, and does so in the "upwards" direction.

Using the same example, we can see that the same distinction applies, in a kind of analogical extension, to a whole range of epistemic operators. Consider the epistemic operator "justified." Let E be the evidential situation of my having seen my new hand containing no aces. I am, *on* my evidence, justified in believing that you do not hold four aces. But I have not, *by* seeing my hand, *become* (more) justified in believing this about your hand. To the contrary, I have, *by* my new evidence, become somewhat less justified than before in believing this.

The distinction also applies to epistemic appears-claims. I am, when *in* the cognitive situation of finding that I hold no aces, entitled to say "It appears that you are not holding four aces." But I have not, *by* this finding (or *on the basis* of it), *become* (more) entitled to say "It appears that you are not holding four aces. That is, my degree of entitlement to this claim has not, by my new finding, been increased; indeed it has been decreased.

I shall refer to Carnap's distinction, when extended in the above ways, as "the Carnapian Distinction."

### 5. Applying the Carnapian Distinction

In sections 2 and 3, we saw how the Phat Vat case seems to get not just CORNEA but also Closure in trouble. In that case, CORNEA says that E (your experiencing the ringing sound) can seriously support R (that you hear your real alarm clock ringing) but *cannot* seriously support  $\sim$ BIV (that you are not in a Phat Vat). But you see that R clearly entails  $\sim$ BIV, so Closure seems to require that if your experience supports R it also support  $\sim$ BIV. The trouble, we saw, looks especially bad in the appears idiom, allowing the authors to twist the knife:

How could your total evidence support a conjunction while failing to support one of its conjuncts? How could you be evidentially better-off with respect to (p & q) than you are with respect to p?

But the Carnapian Distinction uncovers equivocation here. What CORNEA says is that E can't support  $\sim$ BIV in the *dynamic* sense (though it may support R). It says that *by* my new evidence, I may *become* justified in believing R, but cannot *become* justified in believing  $\sim$ BIV. The crucial question is whether Closure applies to *dynamic* epistemic operators. The correct answer is that they do not. To see this consider a conjunction like (G&M): Graham is a citizen of a North American nation and Maitzen is a citizen of Borneo (picking this country at random). Suppose I am at present now nowhere near being justified in believing G&M. I then meet Maitzen at the Central Division APA, and he assures me that he is from Borneo, showing me his Borneo passport. My new evidence E, by boosting M, may hugely boost the probability (justifiedness, etc.) of the conjunction G&M; yet it does nothing to boost the probability of G, the first conjunct.<sup>20</sup>

My thesis, then, is that Closure doesn't hold for dynamic "supports"; it pertains to static senses only.<sup>21</sup> It says that if you see that R entails  $\sim$ BIV, then it is not possible for you, *on* some specified body of evidence, *to be* (statically) justified in believing R, and also *to be* unjustified in believing  $\sim$ BIV. Closure and CORNEA thus pertain to different things. Returning now to the trouble-making counterexamples, let us see in more detail whether, when Closure is properly Carnapped, the trouble is reduced.

### 6. Letting the Donkey Out of the Cage

Current contextualist theories get much appeal from their offer to explain our conflicting intuitions about local skeptical paradoxes of the "painted donkey" sort. It is interest, therefore, whether these paradoxes get some of their grip from neglecting the Carnap Distinction. To see how they might, let's first generate the paradox in a deliberately conflationary "when seeing" locution:

When seeing the striped critter in the cage, I am justified in believing I see a zebra. That I see a zebra self—evidently entails that I am not seeing a cleverly painted-in-stripes donkey ( $\sim$ PID), so I must (by closure) be justified in believing it too. But how, when seeing

the zebra-looking critter, can I be justified in believing that I'm not seeing a cleverly painted donkey? After all, this is just how things would look if it were a cleverly-painted donkey.

Here the locution "when seeing" deliberately obscures the distinction between saying "On observing O, I am justified in believing B" and saying "By observing O, I become justified in believing B." We are then immediately torn between an intuition grounded on Closure and one grounded on CORNEA. The Carnapian Distinction allows us to describe the situation more discerningly in terms of two complementary truths, T1 and T2:

It is true that (T1) *by* seeing the striped critter in the cage, I can *become* justified in believing that (Z) I see a zebra, even though, *by* seeing this, I cannot become justified in believing it is not a painted-in-stripes donkey. (This is, after all, just how it would look if it were a painted donkey, so by CORNEA its looking that way cannot (dynamically) *render* me justified in believing it's not one.) But it is also true that (T2) if, *on* my evidence I am justified in believing that it is a zebra in the case, I am also, *on* this evidence, justified in believing it is not a painted-in-stripes donkey in the cage. (For I see that the first believed proposition entails the second, and on my evidence I am justified in believing the first, so by Closure I am also justified in believing the second.)

Here again, as in the Phat Vat case, the apparent conflict between CORNEA and Closure has evaporated. Indeed, using the two principles in tandem allows us to identify the conditions under which both truths can hold. Suppose I do, by observing the cage, *become* fully justified in believing that a zebra is in the cage—so that, by Closure, I *am* also (seeing the obvious entailment) justified in believing that (~PID) it is not a painted-in-stripes donkey in the cage. CORNEA says that I cannot, *by* new input E, *become* justified in believing ~PID. Accordingly, this proposition must be something that it was justified for me to believe *before*, or *independently of*, the new input E.

Let TE be your total evidence, consisting both of the evidence T that you have apart from looking in the cage, and your new evidence E of what you see on looking in the cage. CORNEA says that E has no boosting power with respect to ~PID, so that if you are now justified in believing ~PID, it is by virtue of what was available to you before input E—on, in other words, your background evidence T.<sup>22</sup>

Does this Carnapian solution fit our common sense intuitions? I venture that for painted donkeys, it does. So far as I can see, our background evidence gives us no reason to think that there has ever been, in the entire history of the universe, a painted donkey substituted for a zebra in a real zoo. If this is so, the new visual data of seeing a striped equine in the zebra cage may be needed to rule out the possibility that the zebra is convalescing at the animal hospital, or out for breeding; it won't need to rule out there being a painted donkey in the cage.<sup>23</sup> That hypothesis is a non-starter before you've bought your ticket.



### 7. Escaping the Phat Vat

Does this line of analysis also work for Phat Vat cases? The difficulty here, as Stewart Cohen notes, is that the “global” character of a Phat Vat hypothesis seems to absorb in advance any *possible* evidence against it.<sup>24</sup> How then it be antecedently improbable *on* one’s total evidence?

Here I think it helps to fill in the BIV scenario so as to make the BIV possibility less mind-numbingly improbable. Suppose, in the scenario sketched earlier, that you are Neo, of *Matrix* fame, acclaimed as “The One” by your fawning band of grungy rebels. And suppose that the reason you’ve stayed up so late is that your total evidence, T, includes recently-acquired compelling evidence that the Matrix has been capturing your rebel comrades one by one, de-bodying them and envatting their brains, and wiring the brains in phat vats so to give them a perfectly simulated virtual *rebel* life. (Your evidence consists of having recently found the vats, with the lifeless debrained corpses of your friends nearby, and of having entered—using your Neotic powers—into their new virtual worlds, so as to see what their current virtual realities are.) It is this total evidence that has kept you up late, brooding about the very real possibility that you yourself have now been captured and similarly envatted.<sup>25</sup> Indeed, given the apparent rate of disappearance of your friends, you correctly gauged this as having at least a probability of .01. It is about this that you are again brooding as you now (E) hear the familiar sound of what you hope is your 6:00 a.m. alarm clock going off, and form the belief (R) that you are hearing your real alarm clock ringing.

Properly Carnapped, Closure and CORNEA tell a *coherent* story here. CORNEA dictates that your new experiential input does not and cannot “dynamically” justify you in believing ~BIV: you cannot, *by E, become* justified in believing ~BIV. Hence, if, on your disturbing prior evidence T, it is unjustified for you to believe ~BIV before hearing the ringing, then it also unjustified for you to believe this after hearing the ringing. Now, if hearing the ringing sound sufficiently increases your justifiedness in believing R, to the point of your becoming justified (on your total evidence) in believing this, then Closure dictates that you are, *on* your total evidence, also justified in believing ~BIV. But Closure does not say what *makes* you justified in believing this latter claim: it doesn’t say, most crucially, that your new ringing-sound evidence plays any dynamic evidential role here. Closure thus leaves open the possibility that the the ringing-sound dynamically makes you justified in believing R only if you were, on T alone, *already* justified in believing ~BIV. This possibility satisfies both CORNEA and Closure.

But how *could* T “improbabilize” an all-absorbing global Phat Vat hypothesis, so as to make *it* a non-starter? This must remain the big question, but here I find our amplified Neo tale at least suggestive. It suggests that we can imagine possible worlds, not so very unlike our own, in which we have, to degrees that we can imaginatively vary up or down at will, much *more* empirical evidence than we now have that there exist superior beings (envatters) doing brain-in-vat enslavements of humans. We can similarly imagine worlds where we have *less* evidence for this than we now have (worlds where, for example, we lack our current knowledge about technology producing sensations by electrical stimulation of the

cortex, or about the billions of galaxies around us). Since our actual world is on this evidential continuum, we are not in an evidential vacuum about the general hypothesis that there are envatters, and our actual evidence surely tilts very strongly against this general hypothesis. And the Phat Vat hypothesis, due to its highly specific character, may occupy such a small possible-world space within this general hypothesis, as to give it, relative to the general hypothesis, an infinitesimally small *logical* probability. These are, of course, hard matters to discern clearly: how empirical and logical probabilities interact is obscure terrain, and here we perhaps just do not know our way about. But I do not see that the global character of a phat-vat hypothesis precludes that our total evidence justifies us in believing we are not in a phat vat. Nor does CORNEA preclude this, since it addresses only dynamic support from situational new evidential input, not static support on total evidence.

### 8. Graham and Maitzen's Argument

My aim here has been to use the Carnapian Distinction to reduce Closure befuddlement, allowing Closure to harmonize with CORNEA. I now turn to specifics in Graham and Maitzen's argument. I see two main missteps here. First, after quoting the 1984 official formulation of CORNEA (see section 1 above), the authors say: "Wykstra offers CORNEA as a necessary condition for being "entitled to assert claims of the form *it appears that p*." But this isn't right. In the official formulation, the "only if" clause within CORNEA is posited as necessary condition for being entitled to an *appears-claim on the basis* of some specified input from a cognized situation. This basis-relation is to be understood in the dynamic sense of "supports" to which, in the sections preceding the official formulation, I gave much attention. The authors are for this reason mistaken in claiming that one cannot, given CORNEA, *be* entitled to assert "It appears that I'm not a brain in the Phat Vat" when in the situation described above. CORNEA entails only that I cannot *become* entitled to assert this, on the basis of the new evidential input of the situation.

This connects closely to a second mistake. The authors note that in their complex Phat Vat case, the CORNEA condition is satisfied for a conjunction but not for one of its conjuncts: this is correct even in simpler cases, as we have seen (see note 14). But they take this as a *reductio*, posing a question meant as rhetorical:

[H]ow could you satisfy CORNEA for asserting a conjunction even when one of its conjuncts does not—indeed, cannot—epistemically appear to you to be true? This result is bad enough by itself, especially in light of the evidential sense of "appears" that Wykstra invokes: how could your total evidence support a conjunction while failing to support one of its conjuncts? How could you be evidentially better-off with respect to  $(p \ \& \ q)$  than you are with respect to  $p$ ?

But the CORNEA requirement is for dynamic epistemic operators only. In cases where  $q$  fails the CORNEA test though  $p \ \& \ q$  passes, CORNEA doesn't at all entail that (*italics mine*) "your *total* evidence fails to support  $q$

(though it supports  $p \& q$ ),” nor that you are “overall better off with respect to  $p \& q$  than with respect to  $q$ .” It entails only that your *new* evidential input cannot dynamically boost  $q$ , (though it may dynamically boost  $p \& q$ ): your new situational input cannot “boost” you into being epistemically better off *than you were before* with respect to  $q$  (though it may do so for  $p \& q$ ). And the Carnapian Distinction has allowed us to see that this does not violate Closure, once this is duly restricted to static epistemic operators.

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## NOTES

I thank my Calvin colleagues for comments on an earlier draft, and especially thank Del Ratzsch for his practical help.

1. Andrew Graham and Stephen Maitzen, “CORNEA and Closure,” *Faith and Philosophy*, this issue.

2. In Bruce Russell and Stephen Wykstra, “The ‘Inductive’ Argument from Evil: A Dialogue,” *Philosophical Topics*, 16 (1988), pp. 133–60, Bruce Russell gives (in the voice of “Athea,” p. 148) a “demon table” objection much like that of Graham and Maitzen. My response to Bruce (in the voice of “Bea Leaver,” pp. 151–52) is the same as my response to Graham and Maitzen (section 8 below), but in 1988 I didn’t see the bearing on the current befuddlement about closure, which is my real concern here.

3. Gail Stine thus found closure under known entailment “of very bad repute” in 1975, when it had barely been named. See G. C. Stine, “Skepticism, Relevant Alternatives, and Deductive Closure,” *Philosophical Studies*, 19 (1976), p. 249.

4. John Hawthorne, *Knowledge and Lotteries* (Oxford University Press, 2004), p. 38, sympathetically quoting Feldman (1999), “Contextualism and Skepticism,” *Philosophical Perspectives*, 103, p. 95.

5. I vote for treating “data” like “news”—as a singular mass noun.

6. Here I assume that Henry is a suitably idealized reflective cognizer. If persons have non-culpably acquired distorted views about the supports-relation, they might be entitled, relative to such views, to make any number of wrong-headed claims about E and H.

7. Stephen Wykstra, “The Humean Obstacle to Evidential Arguments from Suffering: On Avoiding the Evils of ‘Appearance.’” *International Journal for Philosophy of Religion* 16 (1984), p. 85. Reprinted in *The Problem of Evil*, ed. Robert Adams and Marilyn Adams, (Oxford University Press, 1990), pp. 138–60. I clarify and revise CORNEA in “Rowe’s Noseeum Arguments from Evil,” in *The Evidential Argument from*, ed. Daniel Howard-Snyder, *Evil* (Indiana University Press, 1996), pp. 126–50.

8. My colleague Del Ratzsch poses this counterexample: the bomb expert holds his breath, cuts the red wire, and, still alive, says on this basis (p) “Whew, it appears that the bomb hasn’t detonated.” As stated, CORNEA says he’s not entitled to say this (had the bomb detonated, his cognized situation wouldn’t be different in any way discernible by him.) Tweaking from “would likely be different” to “would not likely be the same” may help here.

9. Getting the formulation right, which will vary with the operator involved, is no small task. I insert “also the case” as an aid to keeping closure principles distinct from transmission principles like the one in Gettier (1963), with which they are sometimes confused. Here see Peter Klein, “Closure

Matters: Academic Skepticism and Easy Knowledge," in *Philosophical Issues*, 14, 2004: *Epistemology*, ed. E. Sosa and E. Villanueva, pp. 166–10, and Jessica Brown, "Doubt, Circularity, and the Moorean Response to the Sceptic," in *Philosophical Perspectives* 19, 2005: *Epistemology*, ed. John Hawthorne, pp. 2–4.

10. I use the term "Phat" on the advice of my hip-hop savvy colleague Matt Halteman, who assures me that this fits the paradigm use of "phat" as an adjective predicated of hyper-accessorized cars ("pimp mobiles," I believe Matt called them) and the like.

11. CORNEA gives the test as a necessary condition of serious support, not a sufficient condition: it thus doesn't sanction "does" here.

12. It is to be noted that the authors ground Claims 1 and 2 on standard possible-world semantics for subjunctives. I originally meant the subjunctive formulation to express probabilistic implications of theories, with Bayes's theorem in mind; the appropriateness of Lewis–Stalnaker semantics here needs scrutiny. At any rate, using standard semantics, the idea is that in the closest possible world where the alarm is not ringing, you do not hear it ringing, making it true (on the standard semantics) that if it were not ringing, your experience would be different. But in the closest possible world where you are in the Phat Vat, you do hear it ringing (having the ringing experience built in is part of what makes the Phat Vat hypothesis phat), so on standard semantics it is not true that if you were a brain in the Phat Vat, your experience would be different.

13. Those picky about the entailment can add to the Phat Vat hypothesis that the real alarm is not coincidentally ringing

14. While the authors argue this using a complex scenario, it readily falls out of my simpler scenario. Since R entails  $\sim$ BIV, we can think of it as the conjunction of  $\sim$ BIV and R\*, where R\* is just that surplus content in R that goes beyond  $\sim$ BIV. The argument just given, then, "shows" that CORNEA entails that (R\* &  $\sim$ BIV) may be supported by my evidence even though one of its conjuncts ( $\sim$ BIV) is not. In its appears-variant, it thus seems that CORNEA entails that you can be entitled to say "It appears that R\* &  $\sim$ BIV," even though you are not entitled to say "It appears that  $\sim$ BIV."

15. The argument supposes that the observer can't tell zebras and donkeys apart by anatomical features other than coloration. We can of course always let the hypothesis posit a donkey—a Phat Donkey as it were—that has had whatever reconstructive surgery is needed to ensure this.

16. Stewart Cohen, "Contextualism and Skepticism," in *Philosophical Issues*, 10, 2000: *Skepticism*, ed. E. Sosa and E. Villanueva p. 99.

17. These distinctions are made in section 1.3 (entitled "Rational Support") in Wykstra [1984]. The weak/strong distinction was made as follows:

Let us say that evidence e weakly supports (or confirms) claim c when e makes c to some degree more likely to be true than it would have been on the antecedent evidence. And let us say that e strongly supports (or confirms) c when it increases the likelihood sufficiently to make c 'reasonable to believe' by a person who appreciates that evidence.' A parallel distinction can be drawn between a strong and weak sense of 'disconfirms.'

18. Rudolf Carnap, *Logical Foundations of Probability*, 2nd Edition (Chicago: 1962), pp. 468–78. The relevance of Carnap's distinction to atheology was stressed by Edward Wierenga, "Reply to Harold Moore's 'Evidence, Evil, and Religious Belief,'" in *International Journal for Philosophy of Religion*, 9, 1978: pp. 246–51.

19. David Anderson gives this example in his fine 2005 undergraduate honors thesis "Epistemic Humility and William Rowe's Evidential Argument from Evil," and in an unpublished paper "CORNEA Under Fire."

20. Graham and Maitzen, expressing debt to Dave Anderson, concede as much in a footnote, but without seeing the full bearing of the point.

21. In the probabilistic idiom, closure says that if R has a probability over .5 (or some other threshold of interest) on some data of interest, then anything R entails also has a probability of at least .5 on this same data. This is a well known rule in confirmation theory. Failure to see it holds only for the static sense vitiating Rowe's first (never published) objection against CORNEA, answered in my (never published) "Difficulties in Rowe's Case for Atheism (and in one of Plantinga's fustigations against it)", read on the Queen Mary in 1981.

22. In showing the relevance of the Carnapian distinction here, I do not mean to be claiming that the distinction entirely resolves the puzzle arising in such cases. My claim is only that the distinction, by eliminating a specious source of paradox, promises to help clarify any remaining deeper source of paradox.

23. I am not yet ready to succumb to a contextualist account of what makes alternative possibilities *epistemically* relevant. The Carnapian Distinction itself helps ease the tensions that make contextualism so attractive.

24. Cohen, "Contextualism and Skepticism" (see note 16), p. 103. Cohen considers biting the bullet by appealing to *a priori* probabilities; I find this helpful, but suggest (below) incorporating it within an appeal to an "evidential continuum."

25. You realize, of course, the cruel anti-irony that if you currently are envatted, the Matrix is tormenting you with a virtual reality giving you non-veridical evidential omens of your plight. Your evidence may not be veridical, but you are damned if it isn't even more than if it is.