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RESEARCH ARTICLE

Consequences of Explanationism

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Abstract: If Explanationism is true, then, for any fact and any person, the fact's explaining why they believe it is both a necessary and a sufficient condition for their knowing it. In this paper I question the sufficiency of the condition and argue against its necessity.

Keywords: Knowledge; belief; explanation; Gettier; skepticism; deduction.

§ 1. Introduction

Bogardus & Perrin (2022; 2023) have recently argued for and defended Explanationism:

> **Explanationism**
> S knows that φ if and only if the fact that φ explains why S believes that φ.

If Explanationism is true, then for any person and any fact, the fact's explaining why the person believes it is both a necessary and a sufficient condition for their knowing it. I refer only to *this* condition with 'the condition', *sans* qualification, in the rest of this paper: if the condition is insufficient,

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then in order for someone to know a fact, it is insufficient that it explain why they believe it; if the condition is unnecessary, then in order for someone to know a fact, it is not necessary that it explain why they believe it.

Recently, in the spirit of (Gettier 1963), apparent counterexamples to the sufficiency of the condition have been presented (Piccinini 2022, 411; Mortini 2022, 6–7; Boyce & Moon 2023, 293). Bogardus & Perrin have argued that these apparent counterexamples are not real counterexamples (Bogardus & Perrin 2023). I find Bogardus & Perrin's reply to Mortini's 'defective clock' case adequate (Mortini 2022, 6–7; Bogardus & Perrin 2023, 6–7). However, I think Bogardus & Perrin's reply to Piccinini's case and their reply to Boyce & Moon's case should be discussed.

In § 3 I discuss possible counterexamples to the sufficiency of the condition. In § 3.1 I argue that Explanationists should give positive knowledge verdicts on "fake barn" cases if they reject the safety condition on knowledge. In § 3.2 I discuss Boyce & Moon's 'holoprojector' case and argue that, with respect to a similar case, an Explanationist must attribute knowledge. In § 3.3 I discuss Piccinini's 'telephone' case and Bogardus & Perrin's response to it.

In § 4 I discuss possible counterexamples to the necessity of the condition. In § 4.1 I argue that there are skeptical consequences of Explanationism: if the condition is necessary, then there are cases of apparent knowledge which Explanationism rules out. In § 4.2 I present two counterexamples to the necessity of the condition which both concern deductive knowledge, and I discuss Bogardus & Perrin's 'seeing' account of deductive knowledge.

In the next section, § 2, I discuss Bogardus & Perrin's commitments in detail. I recommend for a first reading that this section be read last after reading the rest of the paper.

§ 2. Complications

§ 2.1 Bogardus & Perrin vs. Strevens

Consider the following passage from (Bogardus & Perrin 2022):

> According to Explanationism…knowledge requires…that beliefs bear the right sort of explanatory relation to the truth. In slogan

> form: knowledge is believing something *because* it's true. Less roughly, Explanationism says knowledge requires…that truth play *a crucial role* in the explanation of your belief. What's a crucial role? We propose adapting Michael Strevens' (2011) "kairetic test" for difference-making in scientific explanation, to the more general purposes of Explanationism. With regard to scientific explanation, Strevens' proposal is this: Start with a deductive argument, with premises correctly representing some set of influences (potential explanans), and the conclusion correctly representing the explanandum. Make this argument as abstract as possible, while preserving the validity of the inference from premises to conclusion; strip away, as it were, unnecessary information in the premises. When further abstraction would compromise the validity of the inference, stop the process. What's left in the premises are difference-makers, factors that play a "crucial role" in the scientific explanation. Now, explaining why a belief is held is importantly different from paradigm cases of scientific explanation. In order to adapt the kairetic test to Explanationism, we propose beginning with a set of potential explanans that explain the relevant beliefs being held, and then proceeding with the abstraction process until further abstraction would make the explanation fail. The remaining explanans are the difference-makers. On Explanationism, for the belief to count as knowledge, the truth of the relevant belief must be among these difference-makers... (Bogardus & Perrin 2022, 179).

Even though Bogardus & Perrin appeal to Strevens' account of difference-making, there is at least one difference between Bogardus & Perrin's account and Strevens' account which is of importance.

In the passage quoted above Bogardus & Perrin describe an abstractive procedure for identifying what Strevens calls an *explanatory kernel*, or, simply, a *kernel*—a set of jointly sufficient explanantia for an explanandum which satisfies certain conditions (see, e.g., (Strevens 2011, 110)) for these conditions). But for Strevens there can be (and there typically is) more than one kernel for a given fact (Strevens 2011, 91, 117–119). So, there can be difference-makers for a fact which are part of one kernel and not another. Hence identifying a kernel using the abstractive procedure is (typically)

insufficient for determining all the difference-makers. So, it is not the case, contrary to what Bogardus & Perrin say, that once you have finished with the abstractive procedure "[t]he remaining explanans are *the* difference-makers" (my emphasis); while the remaining explanantia will be difference-makers, (typically) there will be at least one difference-maker which is not one of those explanantia. For Strevens, a *difference-maker* for a fact is a fact which is part of *at least one* kernel for it (Strevens 2011, 87–88).

This is important for at least one reason: suppose a fact, y, and some other facts, cc, are a kernel for z; if the abstractive procedure sufficed to determine all the difference-makers, we could deduce, for any explanans of y which is not one of cc, call it x, that it could not be a difference-maker for z; for a would-be kernel involving x, y, and cc would always be too complex to be a real kernel, given that y and cc are alone a kernel and x is unnecessary to deduce z given y and cc. But could there not be cases in which: (i) a fact x is a difference-maker for fact y which is in turn a difference-maker for fact z; and (ii) x is a difference-maker for z?

Accounting for cases of this kind is necessary if Bogardus & Perrin are to give an account of knowledge by appealing to difference-making. In an attempt to deal with the following example (which is of the aforementioned kind) they end up appealing to things like the "completeness" and "satisfactoriness" of an explanation in spite of the fact that these things play no part in the abstractive procedure they describe (which was supposed to suffice for determining the difference-makers):

> Consider an ordinary case [of perceptual belief], for example the belief that there's a computer in front of you, formed on the basis of visual perception under normal conditions. Your believing this is straightforwardly explained by the fact that there is a computer in front of you. It's true that there's more we could (and perhaps even should) add to the explanation —facts about the lighting, distance, functioning of your visual system, your visual experience, etc.—but the truth of your belief would remain a crucial part of this explanation. If we tried to end the explanation like so, "You believe there's a computer before you because it looks that way," we'd be ending the explanation on a cliffhanger, as it were. We should wonder whether things look that way because they are that way, or for some other reason. A satisfying,

> complete explanation in this case, then, will include the fact that there is a computer before you, which is the truth of the relevant belief. So, Explanationism tells us this is a case of knowledge, as it should (Bogardus & Perrin 2022, 186).

It is plausible that there is a kernel for the fact that you believe there is a computer in front of you which includes the fact that it looks to you as though there is a computer in front of you and which does not include the fact that there is a computer in front of you. If so, you might, following Bogardus & Perrin's description of the abstractive procedure, wrongly infer that the fact that there is a computer in front of you is not a difference-maker for the fact that you believe it. The fact that Bogardus & Perrin themselves appeal to "satisfactoriness" or "completeness" in this case is evidence that they themselves recognize that their prior description of the identification of the difference-makers cannot be quite right.

What Bogardus & Perrin must do, if they are to follow Strevens at all, is to stick to Strevens' account more closely: as stated before, for Strevens a fact x is a difference-maker for a fact y if and only if x is part of *at least one* kernel for y. Strevens shows that given his understanding of difference-makers and kernels: if a fact x is part of a kernel for y, and y is part of a kernel for z, then x is part of a kernel for z (Strevens 2011, 119, 122); and if a fact, x, is a difference-maker for a fact, y, and y is a difference-maker for z, then x is a difference-maker for z (Strevens 2011, 121–122). The following consequence is just what Bogardus & Perrin want: as long as the fact that there is a computer in front of you is a difference-maker for the fact that it looks to you as though there is a computer in front of you, and the fact that it looks to you as though there is a computer in front of you is a difference-maker for the fact that you believe that there is a computer in front of you, the fact that there is a computer in front of you will be a difference-maker for the fact that you believe that there is a computer in front of you. (It is worth stressing here, in response to comments from a reviewer, that Bogardus & Perrin's account of explanation, if it is to follow Strevens' at all and account for cases like the one just mentioned, will entail that explanation, itself grounded in difference-making, is transitive. So Bogardus & Perrin must accept key inferences in the arguments presented in § 3.)

There is one last thing to say about Bogardus & Perrin's account of explanation *vis-à-vis* Strevens': from the description of their procedure, it is not clear what Bogardus & Perrin think about the explanation of undetermined facts. Suppose that no group of explanantia are jointly sufficient for an explanandum, suppose, e.g., that a particular sample of Uranium-238 emitted an alpha particle yesterday and that it was truly undetermined that it would do so. There cannot be a deductive argument of the kind Bogardus & Perrin need there to be to identify the difference-making facts (i.e. a certain sort of deductive argument the premises of which are explanantia of the conclusion), so at best they have no account of undetermined facts and at worst they must conclude that all undetermined facts are inexplicable. Strevens thinks (2011, 359–361) that one can either try to explain the undetermined fact (e.g. the fact that the sample emitted the alpha particle yesterday) and in place of deductive validity have instead some sort of 'probabilistic validity' (Strevens 2011, 359) or one can give up trying to explain the undetermined fact itself and explain instead the associated probability fact (e.g. the fact that at 00:00 yesterday the probability of the sample emitting the alpha particle by 00:00 today was n), keeping the kernel-identification procedure the same as before. These issues matter. For instance, if it is possible for someone to believe something, know it, and yet it have been undetermined that they would believe it, then Bogardus & Perrin must go with the 'probabilistic validity' option. I shall say no more about these issues here.

*§ 2.2 Explanationism**

A reader might justifiably wonder whether Bogardus & Perrin are actually defending Explanationism* rather than Explanationism:[1]

[1] Bogardus & Perrin use "playing a crucial role"-phrases and "making a difference"—phrases interchangeably in (Bogardus & Perrin 2022) and (Bogardus & Perrin 2023), and on this basis I take Bogardus & Perrin to be committed to the following proposition: the fact that φ is a difference-maker for the fact that ψ if and only if the fact that φ plays a crucial role in an explanation of why ψ. There is thus no need to consider a possible third thesis of theirs phrased in terms of "playing a crucial role."

Explanationism*
S knows that φ if and only if the fact that φ is a difference-maker for the fact that S believes that φ.

They might also wonder what Bogardus & Perrin take the relations between Explanationism and Explanationism* to be. It is obvious that DM→E is true (recall that difference-makers are, by definition, explanantia):

DM→E
If the fact that φ is a difference-maker for the fact that ψ, then the fact that φ explains why ψ.

so, it is obvious that Bogardus & Perrin would think it true. I think that Bogardus & Perrin would also think that E→DM and (hence) DM↔E are true too:

E→DM
If the fact that φ explains why ψ, then the fact that φ is a difference-maker for the fact that ψ.

DM↔E
The fact that φ is a difference-maker for the fact that ψ if and only if the fact that φ explains why ψ.

For in my assessment, Bogardus & Perrin speak of "difference-makers," "crucial roles," and Strevens' "kairetic test" to try to separate the real explanantia for a given fact from the merely apparent explanantia; they do *not* speak of such things in order to separate the "difference-making" explanantia from the non-"difference-making" explanantia. Obviously, if DM↔E is true, Explanationism* is true if and only if Explanationism is true.

I will proceed under the assumption that Bogardus & Perrin are interested in defending Explanationism primarily. I shall thus not speak of difference-making in what follows (except in footnotes) and continue with a direct assessment of Explanationism. That said, I try hard not to assume, in what follows, any explanatory facts which could not plausibly be the case if explanation was grounded in difference-making. I think, but will not show, that there are analogous arguments to those given in § 3 which concern difference-making and which are no less plausible. (Note

that my arguments against the necessity of the (Explanationist) condition, given in § 4, also tell against the necessity of the Explanationist* condition given the truth of DM→E.)

§ 3. Is the Condition Insufficient?

3.1 "Fake Barn" Cases

Consider Ginet's (Goldman 2009, 79, 79 fn.5) "fake barn" case:

> Henry is driving in the countryside with his son. For the boy's edification Henry identifies various objects on the landscape as they come into view. "That's a cow," says Henry, "That's a tractor," "That's a silo," "That's a barn," etc. Henry has no doubt about the identity of these objects; in particular, he has no doubt that the last-mentioned object is a barn, which indeed it is. Each of the identified objects has features characteristic of its type. Moreover, each object is fully in view, Henry has excellent eyesight, and he has enough time to look at them reasonably carefully, since there is little traffic to distract him.…[U]nknown to Henry, the district he has just entered is full of papier-mâché facsimiles of barns. These facsimiles look from the road exactly like barns, but are really just facades, without back walls or interiors, quite incapable of being used as barns. They are so cleverly constructed that travelers invariably mistake them for barns. Having just entered the district, Henry has not encountered any facsimiles; the object he sees is a genuine barn. But if the object on that site were a facsimile, Henry would mistake it for a barn (Goldman 1976, 772–773).

What should Explanationists say about "fake barn" cases such as this? I think that they should affirm, for any "fake barn" case, that the relevant person (e.g. Henry) *does* know that there is a barn in front of them and Explanationists should resist the temptation to deny that the person believes that there is a barn in front of them because there is a barn in front of them (regardless of how many fake barns there are, where they are positioned, etc.). They should also give the same verdict on similar cases

involving fake diamonds, fake antelopes, fake tomatoes, boys who cry "wolf" etc. (Carrier 1976, 247–250; Gendler & Hawthorne 2005).[2]

Bogardus & Perrin seem reluctant to give flat-footed positive verdicts on "fake barn" cases. They write: "We consider it a virtue of Explanationism that its verdicts on Fake Barn Country cases seem to be as indeterminate as our intuitions about whether there's knowledge in such cases" (Bogardus & Perrin 2022, 193, note 24).

The only reason I can think of for an Explanationist not giving a positive verdict on a "fake barn" case is that: (i) she accepts a safety condition on why-explanation:

> **Safety of Why-Explanation**
> If the fact that φ explains why ψ, then, if Ψ, Φ
> (E.g. "If the fact that the owl hit the window explains why I am awake, then, if I were to be awake, the owl would have hit the window," "If …, then I couldn't (easily) have been awake without the owl having hit the window," "If …, then before the owl hit the window it was much more likely for me to be awake and the owl to have hit the window than it was for me to be awake and the owl not to have hit the window.")

and (ii) she judges that the relevant person in the "fake barn" case could easily have believed that there was a barn in front of them without there being a barn in front of them. But Bogardus & Perrin give reasons for rejecting a safety condition on *knowledge* ((Bogardus & Perrin 2022, 181–182); (Bogardus 2014)). And given that an Explanationist should reject a safety condition on knowledge, they should reject the Safety of Why-Explanation; for Explanationism and the Safety of Why-Explanation jointly entail the Safety of Knowledge:

α

1 If S knows that φ, then the fact that φ explains why S believes that φ.
[Explanationism (the necessity of the condition)]

[2] And if Bogardus & Perrin are right that Plantinga's "brain lesion" case (Plantinga 1988, 22–33; Plantinga 1993, 195) is basically a "fake barn" case (2022, 192–93), they should give a positive knowledge verdict on that case too.

2 If the fact that φ explains why S believes that φ, then, S couldn't (easily) have believed that φ without Φ.
[Safety of Why-Explanation]

If S knows that φ, then, S couldn't (easily) have believed that φ without Φ.
[1 & 2; Safety of Knowledge]

and indeed Bogardus & Perrin themselves *do* reject the Safety of Why-Explanation (Bogardus & Perrin 2022, 185, note 15).

In spite of their rejection of the Safety of Why-Explanation, Bogardus & Perrin make the following comparison:

> Even if your eyes happen to fall upon a real barn in a forest of fakes, we might begin to think it false that *it looks like there's a barn before you because there is a barn before you*. As the barn facades proliferate, a rival explanation looms into view: that it looks like there's a barn before you because you're in a region full of structures that look like barns. … Compare: While driving, a contractor's truck drops a large number of sharp objects – nails and screws – all over the road. The car following behind the truck gets a flat tire because it ran through this mess. Meditate for a moment on the suitability of this explanation. Now, while it may be true that one particular sharp object – a nail, let's say – punctured the tire, it's unnecessary to cite that particular object, or the fact that it was a nail rather than a screw, in order to explain the puncture, given all the other sharp objects nearby that nail, poised to puncture the tire in its place. All that figures crucially into the explanation of the punctured tire is the prevalence of these sharp objects (Bogardus & Perrin 2022, 193).

I do not understand what the significance is of this comparison given their rejection of the Safety of Why-Explanation. If one rejects the Safety of Why-Explanation, surely one must concede that the fact that the nail punctured the tire *does* explain why the tire is flat, regardless of whether the tire could easily have been flat without the nail having punctured it. After all, the nail caused the tire to be flat[3] and it is the case that if x causes y

[3] For a recent defence of the relative fundamentality of thing-causation over event-causation see (Baron-Schmitt 2024).

to be F (by V-ing y) then y is F because x V-ed y.[4] Likewise, if one rejects the Safety of Why-Explanation, surely one must concede that the fact that there is a barn in front of you *does* explain why it looks to you as though there is a barn in front of you, regardless of whether it could easily have looked to you as though there was a barn in front of you without there being a barn in front of you.

As Bogardus & Perrin acknowledge (2022, 193, note 24; 2023, 4–5, 7–8), "fake-barn" cases are *not obviously* cases in which the relevant person *does not know* the relevant fact (Gendler & Hawthorne 2005; (Colaço et al. 2014; Turri 2016, 762–764; Schellenberg 2018, 210–212), so "fake barn" cases aren't obviously counterexamples to the sufficiency of the condition. Given Explanationism and the falsity of the Safety of Why-Explanation, an Explanationist should give positive knowledge verdicts on "fake barn" cases.

§ 3.2 "Holoprojector" Cases

Boyce & Moon present the following 'holoprojector' case as a counter-example to the sufficiency of the condition:[5]

> **Holoprojector**
> Micha sees what appears to be a vase sitting on a pedestal. As it happens, the pedestal is really a holographic projector, and there is no vase on top of it. Rather, what Micha is seeing is merely a realistic holographic projection. Micha, who is ignorant of these facts, comes to believe there is a vase in front of him. As it turns out, hidden in a hollow compartment within the pedestal, out of sight, is a vase. The setup is such that the pedestal projects a realistic holographic image of whatever is in that

[4] Regarding difference-makers (see § 2): surely the fact that the nail punctured the tire would be part of at least one kernel for the fact that the tire is flat, hence it would count as a difference-maker. Bogardus & Perrin saying "it's unnecessary to cite that particular object" (2022, 193) in order to explain why the tire is flat suggests that they think that if the fact that the nail punctured the tire does not appear in *every* kernel, then it is not a difference-maker; but one could only infer that it is not a difference-maker if it did not appear in *any* kernel (§ 2.1).

[5] It is based on a similar one in (Lehrer & Paxon, Jr, 1969, 234–35), which was, it seems (Lehrer & Paxon, Jr, 1969, 234, note 12), inspired by a discussion of holograms in (Goldman 1967, 359).

> compartment onto its surface, and this explains why Micha sees the image before him (Boyce & Moon 2023, 293).

Boyce & Moon think that Explanationists are committed to the soundness of the following argument:

β

1 Micha believes that there is a vase in front of him because he sees a hologram of a vase in front of him.

2 He sees a hologram of a vase in front of him because there is a hologram of a vase in front of him.

3 There is a hologram of a vase in front of him because there is a vase in front of him.

4 Micha believes that there is a vase in front of him because there is a vase in front of him.
[1–3]

Micha knows that there is a vase in front of him.
[4, Explanationism (the sufficiency of the condition)]

Boyce & Moon think that the premises are true, but they think that the conclusion is false. Hence, they infer that the condition is insufficient.

Bogardus & Perrin deny that Explanationists are committed to the soundness of β. They argue for the falsity of Premise 4 and Premise 3: "it's incidental that the device was constructed so that the object to be projected is adjacent to the projected image itself. And, in that case, the fact that the vase is before Micha does not figure crucially into the explanation of Micha's belief" (2023, 10–11); see also (2023, 10–11 fn.17). It is, I think, not unreasonable to reject Premise 3. Consider the following argument against Premise 3 of β:[6]

γ

1 If the fact that there is a vase in front of Micha explains why there is a hologram of a vase in front of him, then either it

[6] It's not clear exactly what Bogardus & Perrin's argument against Premise 3 of β is (Bogardus & Perrin 2023, 10–11, 10–11, note 17). But I think it *is* clear that their argument is sound only if γ is sound.

explains why Micha is oriented towards the hologram or it explains why the hologram is being projected.

2 The fact that there is a vase in front of Micha does not explain why Micha is oriented towards the hologram.

3 The fact that there is a vase in front of Micha does not explain why the hologram is being projected.

The fact that there is a vase in front of Micha does not explain why there is a hologram of a vase in front of him.
[1, 2, & 3]

While it seems to be true that if there weren't a vase in front of Micha, the hologram wouldn't be being projected, it seems not unreasonable to say that it is not the fact that there is a vase in front of Micha, but rather (something like) the fact that there is a vase within the pedestal, which explains why the hologram is being projected.

But now consider the following case:

Art installation
There is an art installation in a gallery. It is a pitch-black room within which there are three black pedestals which cannot be seen. The viewer stands in the centre, and if they have their back to the door there is a pedestal on their left, one in front of them, and one on their right. There is an arced track on which a vase is shuttled between the pedestals at regular intervals. This cannot be seen and the shuttling cannot be heard. While the vase is not being shuttled the vase is inside one of the three pedestals. There is a night-vision camera which tracks the viewer's position relative to the vase. If the viewer is oriented towards the vase (it is the orientation of their body, not their head or eyes, which is relevant) and the vase is inside one of the three pedestals (rather than being on its way to one of the pedestals), then a hologram of the vase appears above the pedestal. If the viewer is not oriented towards the vase, then even if the vase is inside one of the three pedestals, a hologram of the vase does not appear. If the viewer is oriented towards the vase, but the vase is not inside one of the three pedestals, then no hologram appears then either. If the viewer sees a hologram

of the vase, it looks to them as if there were a real vase being illuminated. Micha enters the room, and with his back to the door faces the pedestal in front of him. The vase happens to be inside the pedestal and the night vision camera correctly determines that the vase is in front of Micha. The hologram appears, Micha sees it, and Micha believes that there is a vase in front of him.

It seems that the Explanationist is committed to the following argument being sound (this is the counterpart of β):

δ

1 Micha believes that there is a vase in front of him because he sees a hologram of a vase in front of him.

2 He sees a hologram of a vase in front of him because there is a hologram of a vase in front of him.

3 There is a hologram of a vase in front of him because there is a vase in front of him.

4 Micha believes that there is a vase in front of him because there is a vase in front of him.
[1–3]

Micha knows that there is a vase in front of him.
[4, Explanationism]

The counterpart of γ, ε, seems to be unsound:[7]

ε

1 If the fact that there is a vase in front of Micha explains why there is a hologram of a vase in front of him, then either it explains why Micha is oriented towards the hologram or it explains why the hologram is being projected.

[7] Just to be absolutely clear, the premises and conclusions of β and γ are about what obtains in Boyce & Moon's 'holoprojector' case; the premises and conclusions of δ and ε are about what obtains in the 'art installation' case. This is why the soundness conditions of β and γ are different from the soundness conditions of δ and ε.

2 The fact that there is a vase in front of Micha does not explain why Micha is oriented towards the hologram.

3 The fact that there is a vase in front of Micha does not explain why the hologram is being projected.
The fact that there is a vase in front of Micha does not explain why there is a hologram of a vase in front of him.
[1, 2, & 3]

Premise 3 of ε seems to be false; it is, at the very least, much less plausible than Premise 3 of γ. There doesn't seem to me to be a good argument against Premise 3 of δ, and given that it and the other premises seem true, I conclude that they are true.[8] Now, does Micha know that there is a vase in front of him in my 'art installation' case? If you think not, you should think that the condition is insufficient.

§ 3.3 "Telephone" Cases

§ 3.3.1 Piccinini's "Telephone" Case

Piccinini presents the following 'telephone' case as a counterexample to the sufficiency of the condition:[9]

> **Telephone**
> [C]onsider a situation in which agent A shares their knowledge that *p* (e.g., "the rat is on the vat") with agent B, agent B mishears and whispers *q* to C (e.g., "the cat is on the mat"), but agent C mishears in the opposite direction and comes to truly believe that *p* (Piccinini 2022, 411).

Piccinini infers that the following proposition is true:

> C believes that *p* because *p*.

[8] Bogardus & Perrin cannot object to the inference from Premises 1–3 of δ to Premise 4 given that their account of explanation, grounded in difference-making, entails that explanation is transitive (see § 2).

[9] I call it the 'telephone' case because it reminds one of the children's game of the same name.

And he thinks that Explanationists, on account of their commitment to the sufficiency of the condition, are thereby committed to C knowing that *p*. But Piccinini thinks that C does not know that *p*. Hence he thinks that the condition is insufficient and Explanationism is false. Bogardus & Perrin's reply to this case resists summarization, so I ask the reader's patience as I go through the various stages of it.

§ 3.3.2 Bogardus & Perrin's first variant

Bogardus & Perrin firstly consider a variant of the "telephone" case in which B and C have complementary dispositions which are such that B and C "always…reverse each other's mistakes" (2023, 5):

> [I]f that is the case, then receiving testimony in this way would in fact be a reliable guide to the truth. It would be a bit like a process of photography whereby a scene is transferred onto film with reversed tones as a negative, and then the negative image has its tones reversed again when it is developed, resulting in a faithful representation of the scene. One can know, on the basis of the final, developed film, what the original scene was like, despite this double-reversal of tones involved in the photographic process. If something like that is the case with agents B and C – which, admittedly, would be rather bizarre, even by the standards of philosophical thought experiments – then while the truth of agent C's belief figures into the explanation of why he holds it, [E]xplanationism gives the right result: this is knowledge (Bogardus & Perrin 2023, 5)

It is worth questioning whether this is the right result. This variant of the 'telephone' case is analogous to the following case of dodgy abductive reasoning:[10]

[10] This particular example is due to Maria Zanella. This case has the following form: the fact that φ explains why S believes that φ; S (invalidly) infers that χ because S believes that φ; S believes that χ because S (invalidly) infers that χ; S (invalidly) infers that ψ because S believes that χ; S believes that ψ because S (invalidly) infers that ψ; the fact that ψ explains why φ; hence the fact that ψ explains why S believes that ψ.

Scurvy

> The fact that a man had yellow eyes the last time his mother saw him explains why his mother believes that he had yellow eyes. She infers from the fact that he had yellow eyes that he was a demon. (She thinks that if someone has yellow eyes then they are very likely to be a demon.) She comes to believe that her son was a demon. She infers, from the premise that he was a demon, that he had scurvy. (She thinks, for some odd reason, that all demons have scurvy, and is ignorant of the fact that having yellow eyes is a symptom of having scurvy—she thinks that if you have yellow eyes you are very likely to have scurvy, but she doesn't think that if you have scurvy you are likely to have yellow eyes.) She comes to believe that her son had scurvy. She believes that he had scurvy because she inferred that he had scurvy and because she believed, when she inferred, that he was a demon. She believed that he was a demon because she inferred that he was a demon and because she believed that he had yellow eyes. As stated, she believed that he had yellow eyes because he had yellow eyes. As a matter of fact, he had yellow eyes because he had scurvy. So, she believes that he had scurvy because he had scurvy.

Do Bogardus & Perrin really want to say that the mother in the 'scurvy' case knows that her son had scurvy? If not, then what relevant difference can they point to between the 'scurvy' case and the variant of the 'telephone' case under consideration which justifies the differing verdicts? I can't see any. Does it count in favour of her knowing that her son had scurvy that she would, on account of her beliefs, *reliably* infer that someone had scurvy from their having yellow eyes? I think not. Likewise, I think the fact that B and C would reliably reverse each other's mistakes doesn't count in favour of C knowing that *p*.

§ 3.3.3 Bogardus & Perrin's Second Variant

Bogardus & Perrin secondly consider a variant of the 'telephone' case in which "B and C mishear things quite at random, and there's far from any guarantee that their mistakes will reverse each other" (2023, 5):

> [I]f that's what's happening, then agent C believes that the rat is on the vat not because of the particular content of what he heard from agent B, but because he heard *something or other*, and scrambled it. And agent B said "the cat is on the mat" because that's what he heard, but that's what he heard *not* because agent A said "the rat is on the vat," but rather because agent A said *something or other*, which agent B scrambled. While agent A did say something because he wished to report that a rat is on the vat, the particular content of his belief is not a "difference-maker"[11] in this chain of explanation. It doesn't really matter what exactly he wished to report, only that he initiated this chain of events by reporting something or other. If the scrambling on the part of agents B and C is random, as we're now considering, then it's just a fluke that agent C ended up believing something that matched the original input from agent A. It was just as likely that agent C would have ended up with that belief had agent A said something else entirely. So, agent C's belief that the rat is on the vat is not held because it's true. It's held because agent A initiated a process of random scrambling, which by the sheerest coincidence happened to result in this belief on the part of agent C (Bogardus & Perrin 2023, 5).

I think that what Bogardus & Perrin *actually* say here leaves open the possibility that C knows that p, contrary to what they wish to show. In the first sentence they commit themselves to the truth of the following proposition:

> C believes that p because B said something to C.

But this is the crucial premise of the following argument:

ζ

1 A believed that p because p.

2 A said something to B because A believed that p.

3 B said something to C because A said something to B.

4 C believes that p because B said something to C.

[11] See § 2 for a discussion of difference-making.

5 C believes that p because p.
[1–4]

C knows that p.
[5 & Explanationism]

Premise 1 follows from the necessity of the condition and the stipulation that A knows that p. It is unclear whether Bogardus & Perrin think Premise 2 is true. This is the relevant part of the passage which concerns Premise 2:

> While agent A did say something because he wished to report that a rat is on the vat, the particular content of his belief is not a "difference-maker" in this chain of explanation. It doesn't really matter what exactly he wished to report, only that he initiated this chain of events by reporting something or other (Bogardus & Perrin 2023, 5).

The first clause seems to commit them to the truth of Premise 2,[12] the rest seems contrary to it.[13] They would be wrong to deny Premise 2, however. In the variant of the 'telephone' case under consideration, in which there are 'random' mishearings, it is true that *what* A *said* to B doesn't matter; it is for this reason that we are only considering as part of the explanatory chain the fact that A said *something* to B, and not the fact that A said to B that p. But it does not follow from this or any of the suppositions of the variant under consideration that what A *believed* doesn't matter. It is compatible with the suppositions of the variant under consideration that A said something to B because A believed that p, and that A wouldn't have said anything to B had A not believed that p. So Bogardus & Perrin cannot rule out that Premise 2 is true in the variant under consideration.

Premise 3 is presumably true. Premise 4, as I said, is the crucial premise: given Premises 1–3, if Premise 4 were true, Bogardus & Perrin wouldn't be able to rule out that C knows that p even though this is what they intended

[12] I ignore the fact that Bogardus & Perrin speak of wishing to report something, rather than believing. I don't think this difference is one on which they wish to rest the argument. They even use the expression "his belief" in the second clause as if A's believing has already been mentioned.

[13] It should be clear from my discussion that I don't think the interpretation of the passage hinges on whether Bogardus & Perrin believe E→DM to be true (see § 2.2).

to do. Bogardus & Perrin, in my opinion, *mistakenly* commit themselves to the truth of Premise 4 in the passage quoted above. I shall now explain why I think it a mistake.

If I have understood Bogardus & Perrin correctly, one of the consequences of what they say when they suppose that "B and C mishear things quite at random" is that it was (objectively) unlikely for C to believe that p even at the point at which B said to C that q. And yet if it were objectively unlikely for C to believe that p even at the point at which B said to C that q is it really the case that C believes that p *because* B said something to C? I think that Bogardus & Perrin should say "no." They *should* have said (here I am in fact paraphrasing Bogardus & Perrin (2022, 192)): we may have an explanation of why C believes *something*, but we have no explanation of why C believes that p; that's the nature of a truly random process, there is no demystifying explanation of its operation.[14] In other words, Bogardus & Perrin should say that Premise 4 is false, and hence that ζ is unsound.

This imagined response from Bogardus & Perrin to this variant is, I think, unobjectionable.[15] However I doubt whether discussion of this variant is relevant at all when considering the 'telephone' case of Piccinini: I take it that, unlike the 'random mishearing' variant, in Piccinini's case there is no indeterminacy at all. It is to issues of relevance that I now turn.

§ 3.3.4 Is Bogardus & Perrin's Reply Off-Target?

After considering the two variants Bogardus & Perrin say this:

> There are also possibilities in between. Perhaps agents B and C do not scramble what they hear completely at random, and perhaps they don't reliably reverse each other's errors so as to invariably produce a faithful report in the end. Perhaps they corrupt what they hear only to *some* degree, and in this particular

[14] Bogardus & Perrin should be receptive to this paraphrase given that it is they who refer the reader to the relevant passage of (Bogardus & Perrin 2022) in discussing the "telephone" case (2023, 5).

[15] I set aside the fact that Bogardus & Perrin need a different account of explanation to deal with cases of (objective) indeterminacy (see § 2.1).

> case Piccinini describes it merely *happened* faithfully to preserve the original message. If so, we believe the thing to say is this: the closer the corruption process of agents B and C is to random, the clearer it is that there's no knowledge here, according to [E]xplanationism. And that accords with our intuitions. The closer the corruption process of agents B and C is to the reliable double-reversal process, the clearer it is that there is indeed knowledge here, according to [E]xplanationism. And that too accords with our intuitions. There will be a sliding scale in between these two extremes. But, anywhere you go on that scale, [E]xplanationism delivers verdicts that accord with our intuitions (Bogardus & Perrin 2023, 6).

The first point to make is that I have already called into question whether there is knowledge in Bogardus & Perrin's first variant of Piccinini's case (3.3.2). The second point I want to make is the following. Bogardus & Perrin write as if they have identified *one* axis of variation for cases such as Piccinini's (one "scale"), but it seems to me that they have identified at least two axes pertaining to the following variables: how complementary the dispositions of B and C are (or perhaps simply whether B and C have complementary dispositions); and the likelihood of C coming to believe that p at the time at which A said to B that p (or perhaps at some other time before C's believing that p). There is no *one* scale with cases at one end in which there is no explanation and no knowledge and cases at the other end in which there is both explanation and knowledge. So, if the implication was that the 'telephone' case sits somewhere on this one scale and is accounted for regardless of where it falls, this implication is false.

As I understand Piccinini's "telephone" case, it is a case in which it was determined at the time at which A said to B that p (and indeed at the time at which the rat was on the vat) that C would come to believe that p, but B and C do not have complementary dispositions—there aren't numerous hypothetical 'telephone' circumstances under which they would reverse each other's mishearings. Rather, in Piccinini's 'telephone' case circumstances were favourable and C came to believe a truth. I concur with Piccinini that Explanationists are committed to C knowing that p in this case. If you think that C does not know that p, you should think that the condition is insufficient.

§ 4. The Condition is Unnecessary

§ 4.1 The Skeptical Consequences of Explanationism

In this section, I argue that there are apparent cases of knowledge which, if the condition were necessary, would not be real cases of knowledge. Consider the following 'chute' case based on the one in (Sosa 1999, 145–146):

> **Chute**
>
> On his way to the elevator Smith throws a trash bag down the chute in his apartment building. Smith is now in the elevator. Smith believes that the trash bag is in the basement. The trash bag *is* in the basement.

Does Smith know that the trash bag is in the basement? Not if the condition is necessary. The fact that the trash bag is in the basement does not explain why Smith believes that it is in the basement. So, if the condition is necessary, Smith does not know that the trash bag is in the basement. At best, Smith knows that unless something strange or anomalous happened, the trash bag is in the basement. If you think that Smith *does* know that the trash bag is in the basement, you should think that the condition is unnecessary.[16]

Consider now the following three cases, based on cases in (Starmans & Friedman 2012, 278, 282–283) and (Starmans & Friedman 2020, 14):

> **1936**
>
> Smith's piggy bank contains many coins of different denominations. He doesn't know the dates of any of the coins already in his piggy bank, he doesn't even know *roughly* when they are from. Just before putting a quarter into the piggy bank, Smith uncharacteristically looks at the date on it and sees that it is from 1936. He puts it in the piggy bank, he puts the piggy bank in his closet, and he goes to sleep. He wakes up the next morning, he doesn't check his piggy

[16] I think that Bogardus & Perrin would accept that Smith does not know that the trash bag is in the basement (Bogardus & Perrin 2022, 191, note 21)—the "unless something strange or anomalous" wording comes from their discussion of knowledge of the future.

bank, he doesn't even open the closet, he leaves his room, goes to the kitchen, and is eating his breakfast. The quarter he put in the piggy bank last night has remained there ever since he put it there and it is in the piggy bank right now.

Thief

Smith's piggy bank … and he goes to sleep. While Smith is sleeping, Jones comes into Smith's room, opens Smith's closet, and steals a handful of coins from Smith's piggy bank, including the 1936 quarter Smith put in the piggy bank before he went to sleep. Jones leaves the piggy bank in the closet, closes the closet door, and exits Smith's room. Smith wakes up the next morning, he doesn't check his piggy bank, he doesn't even open the closet, he leaves his room, goes to the kitchen, and is eating his breakfast. The quarter he put in the piggy bank last night is no longer in the piggy bank, Jones has it, but there is another quarter still left in the piggy bank which has been there since before the one Smith put in there last night, which has remained in the piggy bank all night, and which is in the piggy bank right now. Additionally, it is from 1936.

1938

Smith's piggy bank … he doesn't even know *roughly* when they are from. Just before putting a quarter into the piggy bank, Smith uncharacteristically looks at the date on it and comes to believe, based on what he sees, that it is from 1936. As a matter of fact it is slightly damaged and it is from 1938. He puts it in the piggy bank, he puts the piggy bank in his closet, and he goes to sleep. Smith wakes up the next morning, he doesn't check his piggy bank, he doesn't even open the closet, he leaves his room, goes to the kitchen, and is eating his breakfast. The quarter he put in the piggy bank last night has remained there since he put it there and is in the piggy bank right now. There is also another quarter in the piggy bank which *is* from 1936, which has been in the piggy bank since before the quarter he put in there last night, which has remained in the piggy bank all night, and which is in the piggy bank right now.

Now consider the following three questions:

> In the '1936' case, at the time at which Smith is eating his breakfast, does he know that there is a 1936 quarter in his piggy bank?
>
> In the 'thief' case, at the time at which Smith is eating his breakfast, does he know that there is a 1936 quarter in his piggy bank?
>
> In the '1938' case, at the time at which Smith is eating his breakfast, does he know that there is a 1936 quarter in his piggy bank?

If Explanationism is true, and, in particular, if the condition is necessary, then the answer to all three questions is "no." The reason is the same for all three cases: supposing that Smith believes that there is a 1936 quarter in his piggy bank, the fact that there is a 1936 quarter in his piggy bank does not explain why he believes it; he believes that there is a 1936 quarter in his piggy bank either because he believes that there *was* a 1936 quarter in his piggy bank or because he believ*ed* (the evening before) that there was a 1936 quarter in his piggy bank (i.e. he believed "there is a 1936 quarter in my piggy bank").[17]

One might justifiably think that giving the same answer to all three questions is absurd (as opposed to saying "yes," "yes," "no" or "yes," "no," "no") and that it is even more absurd to give the same answer to all three questions for the same reason. If you aren't so skeptical as to give a negative answer to all three questions, you should think that the condition is unnecessary.

§ 4.2 Explanationism and Deduction

§ 4.2.1 Counterexamples

In this section I present two counterexamples to the necessity of the condition. Both of these counterexamples concern deductive knowledge. Before I present my counterexamples, I discuss inferring and deducing.

Inferring(/reasoning) will not be defined. I assume that inferring is thinking (not all thinking is inferring), inferring takes time, and inferring is

[17] These cases raise difficult questions about the accumulation of beliefs over time and about the identity conditions of beliefs over time, questions which I will not try to address here.

a process. I assume that one can believe something (at least in part) because one inferred it. I assume that to believe something is to be in a certain sort of state or else it is to have certain dispositions; I assume that believing something is not a process. I assume that if someone believes something because they inferred it, then for every premise from which they inferred it they believe it/the conclusion (at least in part) because they believed the premise (whether or not the fact that they believed the premise (partially) explains why they inferred the conclusion).

To validly infer will not be defined. However, if one validly infers a conclusion, then it is not possible for the conclusion to be false if the premise(s) one inferred from is(/are) true. I stipulate that to deduce (i.e. soundly infer) something is to validly infer it from facts. Hence if one deduces something it is a fact.

I assume that if someone believes something (at least in part) because they inferred it, and if the inferring was a deducing, and if all of the facts from which they deduced it were known by them at the time of the deduction, then they know it. I assume that if even one of the facts from which they deduced it was merely believed and not known by them at the time of the deduction, then, unless they believe the conclusion for some reason entirely disconnected from the inference, they do not know it.

I think that the following states of affairs are compossible: someone knows a fact; they believe the fact because they inferred it; the fact doesn't explain why they believe it; the inferring was a deducing; and all of the facts from which they deduced the conclusion (i.e. the fact) were known by them at the time of the deduction. If these states of affairs *are* compossible, then the condition is not necessary and Explanationism is false. In the rest of this section, I present two counterexamples to the necessity of the condition which are supposed to illustrate the compossibility of the aforementioned states of affairs.

Consider the following case:

Case I

Smith knows that Hindley Earnshaw was Hareton's father, that Mrs Catherine Linton was the mother of Mrs Heathcliffe, and that Hindley and Mrs Linton were siblings. Smith wonders how Hareton and Mrs Heathcliffe are related. Smith thinks "Hareton's father was

> Hindley, and Mrs Linton was Hindley's sister, so Mrs Linton was Hareton's aunt; Mrs Heathcliffe is Mrs Linton's daughter, so Hareton and Mrs Heathcliffe are cousins." Consequently, Smith comes to believe that Hareton and Mrs Heathcliffe are cousins. Smith believes that Hareton and Mrs Heathcliffe are cousins because he inferred it. But Smith does not believe that they are cousins because they are cousins. Nevertheless, Smith knows that they are cousins.

Explanationism entails that this sort of case is impossible. But it seems to be possible.

Here is another case, inspired by a puzzle in (Smullyan 1982, 4):

> **Case II**
>
> Smith knows that Jones bought something for $7, sold it for $8, bought it back again for $9, and sold it again for $10. Smith wonders how much money Jones made trading the item. Smith thinks "-7 plus 8 is 1, 1 minus 9 is -8, -8 plus 10 is 2, so Jones made $2." Consequently, Smith comes to believe that Jones made $2. Smith believes that Jones made $2 because he inferred it. But Smith does not believe that Jones made $2 because Jones made $2. Nevertheless Smith knows that Jones made $2.

In order for Smith to *know* that Jones made $2, must the fact that Jones made $2 explain why Smith believes it? I think not.

§ 4.2.2 Bogardus & Perrin's Account of Deductive Knowledge

In this section I discuss Bogardus & Perrin's account of deductive knowledge and argue that one should sooner accept my counterexamples to the necessity of the condition than accept Bogardus & Perrin's account of deductive knowledge.

Bogardus & Perrin think that all possible cases in which someone comes to believe something because they inferred it, in which the inferring was a deducing, and in which all of the facts from which the person deduced it were known by them at the time of the deduction are cases in which the person believes the conclusion because they "saw" it (2022, 190). Call this

the "seeing" account of deductive knowledge. What is this "seeing"? I think it best to quote Bogardus & Perrin at length:

> Deductive arguments are a means by which we come to metaphorically "see" the truth of some proposition.…It's like an ordinary case of non-metaphorical vision. Vision is fallible, since it might be a hallucination or illusion. But so long as your visual system is functioning well, it puts you in a position to see objects before you, and if one such is a chair, you believe there's a chair there *because* there's a chair there. The fact that there's a chair there is a crucial part of the explanation of why you believe there is. Similarly, when you see the premises are true and the inference valid, deduction helps you see the conclusion. And that's because, in a sound argument, the conclusion is already "there," so to speak, in the premises. When one appreciates a sound argument, one is not merely seeing the truth of the premises and the validity of the inference; one also sees the truth of the conclusion thereby. In that case, you believe the conclusion because it's true. This is fallible, when the component beliefs or premises might be false or otherwise unknown. But, when they're true and you know it, then deduction positions you to see the truth of the conclusion (Bogardus & Perrin 2022, 190).

Bogardus & Perrin would argue that if Case I and Case II were possible there would be a 'seeing' in each case and in Case I Smith would believe that Hareton and Mrs Heathcliffe are cousins *because* they are cousins and in Case II Smith would believe that Jones made $2 *because* Jones made $2. They would argue that the stipulations to the contrary (e.g. "Smith does not believe that Jones made $2 because Jones made $2") make the cases impossible.

In the interests of brevity, I shall consider only the argument they would offer which pertains to Case II. What I am interested in in particular is the argument they would offer for the conclusion that if Case II were possible then Smith would believe that Jones made $2 because Jones made $2, i.e. I am interested in η:

η

1 Case II is possible
[Assumption]

2 Smith believes that Jones made $2 because he "saw" that Jones made $2.
[1, the "seeing" account of deductive knowledge]

3 Smith "saw" that Jones made $2 because Jones made $2.
[2, the nature of 'seeing'(?)]

4 Smith believes that Jones made $2 because Jones made $2.
[2 & 3]

If Case II were possible, then Smith would believe that Jones made $2 because Jones made $2.
[1–4]

I shall argue that if "seeing" is knowing/understanding, then Premise 2 is false. Then I shall argue that if 'seeing' is thinking/judging/concluding, then Premise 3 is false. Then I shall argue that if the 'seeing' is something other than Smith's understanding or Smith's concluding, we should sooner believe that Case II is a counterexample to the necessity of the condition than believe in the existence of 'seeing's; and if there are no 'seeing's, then Premise 2 and Premise 3 are both false. Hence, I conclude that η is unsound and Case II is a counterexample to the necessity of the condition.

First, what if 'seeing' is knowing/understanding? I assume that Smith's understanding that Jones made $2 just is his knowing that Jones made $2. I accept that Smith knows that Jones made $2, hence I accept that Smith understands that Jones made $2. So, in that familiar sense of "see" in which it means what "understand"/"know" means, Smith does see that Jones made $2. But Smith doesn't believe that Jones made $2 because he knows/understands that Jones made $2; nor does Smith believe that Jones made $2 because he knew/understood that Jones made $2. Smith's knowing/understanding that Jones made $2 is neither explanatorily nor temporally prior to Smith's believing that Jones made $2. So, if "seeing" is knowing/understanding Premise 2 is false.

Now suppose that Smith's "seeing" that Jones made $2 is his thinking "so Jones made $2"/"Jones made $2." Smith's concluding/judging/thinking "so Jones made $2"/"Jones made $2" is not analogous to a perceptual act in the way in which Bogardus & Perrin need it to be: the fact that Jones made $2 does not explain why Smith thought "so Jones made $2." It is just

as implausible that the fact that Jones made $2 explains why Smith thought "so Jones made $2"/"Jones made $2" as it is that the fact that Jones made $2 explains why Smith believes that Jones made $2. The 'seeing' was appealed to in order to account for how, if at all, the belief could be explained by the fact believed: something else would be needed in order to explain how, if at all, the judgment could be explained by the fact believed. A regress looms. So, if 'seeing' is concluding/judging/thinking, Premise 3 is false.

Could the 'seeing' be anything other than the understanding or the concluding? If it were anything else, I don't see why we should believe that there is such a thing. It seems to me that we don't need to appeal to the alleged fact that Smith "saw" that Jones made $2 in order to explain why Smith believes that Jones made $2: he believes it because he inferred it and because he believed the premises from which he inferred it; and no 'seeing's are needed to explain these facts. Explanationists must demonstrate the explanatory necessity of "seeing"s if we are to believe they exist. As of right now, they are hypothetical entities and the only reason for believing in them is that they would solve a problem for Explanationism. I therefore think that one should sooner accept Case II to be a counterexample to the necessity of the condition than accept that there are 'seeing's which aren't understandings or concludings.

So, either Premise 2 is false because 'seeing' is understanding, or Premise 3 is false because 'seeing' is concluding, or Premise 2 and Premise 3 are false because there are no 'seeing's. Hence one should sooner accept Case II to be a counterexample to the necessity of the condition than accept Bogardus & Perrin's 'seeing' account of deductive knowledge. The same is true of Case I.

§ 5. Conclusion

In this paper I have discussed some consequences of Explanationism. In § 3 I questioned the sufficiency of the condition. In § 4.1 I argued that there are skeptical consequences of the necessity of the condition. In § 4.2 I gave two counterexamples to the necessity of the condition which both concern deductive knowledge.

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