

UNDAUNTED EXPLANATIONISM

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ABSTRACT: Explanationism is a plausible view of epistemic justification according to which justification is a matter of explanatory considerations. Despite its plausibility, explanationism is not without its critics. In a recent issue of this journal T. Ryan Byerly and Kraig Martin have charged that explanationism fails to provide necessary or sufficient conditions for epistemic justification. In this article I examine Byerly and Martin's arguments and explain where they go wrong.

KEYWORDS: epistemic justification, evidentialism, explanationism, explanationist evidentialism

Most everyone is an explanationist in the sense that they regularly employ explanatory reasoning/inference to the best explanation. This sort of reasoning is “so routine and automatic that it easily goes unnoticed.”¹ Recognition of the ubiquity of explanatory reasoning in both our everyday lives and our scientific practices helps make plausible a stronger sense of explanationism. Explanationists of this stronger variety not only accept inference to the best explanation as a legitimate form of reasoning, they contend that all epistemic justification is a matter of explanatory considerations. I am such an explanationist. Along with my fellow Alabama Explanationist, Ted Poston, I have worked to elucidate and defend explanationism in a number of works.² Fortunately, these efforts have helped spur on discussion and debate concerning the merits of explanationism.³ Most recently,

¹ Igor, Douven (2011). “Abduction,” in *The Stanford encyclopedia of philosophy* (Spring 2011 Edition), ed. Edward N. Zalta, URL = <http://plato.stanford.edu/archives/spr2011/entries/abduction/>.

² Kevin McCain, “Explanationist Evidentialism,” *Episteme* 10 (2013): 299-315, “Evidentialism, Explanationism, and Beliefs about the Future,” *Erkenntnis* 79 (2014): 99-109, *Evidentialism and Epistemic Justification* (New York: Routledge, 2014), “Explanationism: Defended on All Sides,” *Logos & Episteme* 6, 3 (2015): 333-349, *The Nature of Scientific Knowledge: An Explanatory Approach* (Switzerland: Springer, 2016), “Explanationist Aid for Phenomenal Conservatism,” *Synthese* (forthcoming), Kevin McCain and Ted Poston, “Why Explanatoriness Is Evidentially Relevant,” *Thought* 3 (2014): 145-153, and Ted Poston, *Reason & Explanation: A Defense of Explanatory Coherentism* (New York: Palgrave-Macmillan, 2014).

³ See, for example, T. Ryan Byerly, “Explanationism and Justified Beliefs About the Future,” *Erkenntnis* 78 (2013): 229-243, T. Ryan Byerly and Kraig Martin, “Problems for Explanationism on Both Sides,” *Erkenntnis* 80 (2014): 773-791, T. Ryan Byerly and Kraig Martin, “Explanationism, Super-Explanationism, Ecclectic Explanationism: Persistent Problems on Both

Kevin McCain

this discussion has been further advanced by T. Ryan Byerly and Kraig Martin's (hereafter "B&M") critique of explanationism in this journal.⁴ In their article B&M contend that my recent attempt to defend explanationism fails.⁵ They maintain that explanationism provides neither necessary nor sufficient conditions for epistemic justification. They are mistaken on both accounts. Nevertheless, B&M's objections are instructive to consider and respond to because doing so helps to clarify explanationism. This clarity helps demonstrate explanationism's viability as a theory of epistemic justification.

In this article my primary focus is B&M's most recent attack on explanationism. In light of this, I will not provide a general defense or motivation for explanationism. Instead, I will briefly explain explanationism and then turn to B&M's objections to it. I will explicate the problems with B&M's objections to both the sufficiency and necessity of explanationism. The end result is that despite interesting challenges from B&M explanationists should remain undaunted.

1. Explanationism

Before considering the objections that B&M press for explanationism it will be helpful to have a clear statement of the view. The central idea of explanationism is that epistemic justification is fundamentally a matter of explanatory relations. There are a variety of ways that one might spell out this key idea though. Hence, explanationism is perhaps best understood as more of a general approach, or a family of theories, than a particular theory of epistemic justification. Despite this fact, it will be useful to rely on the following specific explanationist theory in the present discussion for two reasons. First, this is a plausible explanationist theory of justification, and it works well as a test for objections to explanationism in general. Second, this is the specific explanationist theory that B&M target in their attack.⁶ So, from this point on, unless otherwise noted, 'explanationism' will refer to the following account of justification:

Sides," *Logos & Episteme* 7 (2016): 201-203, William Roche and Elliott Sober, "Explanatoriness is Evidentially Irrelevant, or Inference to the Best Explanation Meets Bayesian Confirmation Theory," *Analysis* 73 (2013): 659-668, William Roche and Elliott Sober, "Explanatoriness and Evidence: A Reply to McCain and Poston," *Thought* 3 (2014): 193-199, Gregory Stoutenberg, "Best Explanationism and Justification for Beliefs about the Future," *Episteme* 12 (2015): 429-437, and Gregory Stoutenberg and Bryan Appley, "Two New Objections to Explanationism," *Synthese* (forthcoming).

⁴ Byerly and Martin, "Explanationism."

⁵ McCain, "Explanationism: Defended."

⁶ They refer to this as 'super-explanationism.'

A person, S, with evidence e at time t is justified in believing p at t if and only if at t S

has considered p , and:

- (i) p is part of the best explanation available to S at t for why S has e or
- (ii) p is available to S as an explanatory consequence of the best explanation available to S at t for why S has e .^{7,8}

There are a number of points about explanationism that could stand further clarification, and there are many things that can be said in support of this principle.⁹ Here, however, it will be sufficient to expound upon just three points related to explanationism. The first point is that S's evidence, e , should be understood to be S's total evidence, not merely a proper subset of S's evidence. This is a key point that I have emphasized repeatedly in my various defenses of explanationism.¹⁰ Focusing on a portion of S's evidence rather than S's total evidence ignores the potential impact of defeating evidence. Failure to consider S's total evidence when applying explanationism can lead to misguided objections to the theory as will become clear in the next section.

The second point that needs clarified is what it is that makes an explanation the best. A variety of explanatory virtues contribute to making one explanation better than another. Things like "simplicity, explanatory power (the range of phenomena explained and/or how illuminating the explanation is), consistency with [background information], non-ad hocness, [and] predictive power (making

⁷ McCain, "Explanationism: Defended," 339. In that article I refer to this account as "Ex-EJ 2.0". This account of propositional justification is a key component of my complete theory of epistemic justification, *Explanationist Evidentialism*, which is a theory of doxastic justification/well-founded belief. *Explanationist Evidentialism* is explained more fully in my book, *Evidentialism and Epistemic Justification*.

⁸ Two important qualifications of explanationism are made clear in footnote 19 of "Explanationism: Defended". "In order for S to be justified in believing that p it must not only be the best available explanation of S's evidence, it must also be a sufficiently good explanation of S's evidence. Similarly, in order for S to be justified in believing an explanatory consequence, p , of the best available explanation of her evidence it has to be that the best available explanation of her evidence would explain p significantly better than it would $\sim p$." Both B&M's criticism of explanationism and the current discussion assume that these conditions are satisfied in the examples in question.

⁹ See McCain, "Explanationism: Defended" and *Nature of Scientific Knowledge* for discussion and defense of this exact formulation of explanationism. See McCain, "Explanationist Evidentialism", "Beliefs about the Future", and *Evidentialism* for defense of a similar principle that appeals to logical entailment rather than explanatory consequence.

¹⁰ Poston, *Reason & Explanation*, makes this point explicit as well.

novel predictions)” are commonly appealed to as explanatory virtues.¹¹ Just as with inferences to the best explanation, the best explanation referred to in explanationism is the one that has the most favorable mixture of these virtues. In some cases it is easy to determine the best explanation. For example, if two potential explanations are alike in all ways except that one is consistent with background information and the other is not, then the former is better than the latter. In other cases it is not easy to determine which explanation is best. When one explanation is simpler than another, but the more complex explanation has more explanatory power it can be difficult to determine which is the best. Fortunately, for present purposes it is not necessary to provide precise details for determining when one explanation is better than another. Instead, it is enough that it is recognized that there are a variety of explanatory virtues and that the best explanation is the one with the most favorable balance of these virtues. It is a mistake to fixate on one explanatory virtue to the exclusion of the others. This point will also be further illustrated in the discussion of the next section.

Finally, the third point that needs to be clarified is what it means for p to be an explanatory consequence of the best explanation available to S at t . The idea here is fairly straightforward. p is an explanatory consequence of the best explanation available to S when “ p would be better explained by the best explanation of S ’s evidence available to S at t than $\sim p$ would. In other words, if p were true, the best available explanation of S ’s evidence would better explain its truth than it would the truth of $\sim p$, if $\sim p$ were true.”¹² With these points in hand it is time to turn toward the substance of B&M’s attack on explanationism.

2. The Attack on Sufficiency

B&M begin their most recent critique of explanationism by arguing that it fails to provide sufficient conditions for justification. More specifically, they argue that there are cases where p is part of the best available explanation for why S has e , and yet p is not justified for S . It is worth quoting the example that they rest their case for this point on in its entirety:

Imagine that Sally is the lead detective on an investigation of a burglary. She typically uses an eight-step investigative procedure for crimes of this sort and this procedure involves gathering and analyzing multiple kinds of evidence – physical evidences, forensic evidences, testimonial evidences, psychological evidences, circumstantial evidences, and so on. Sally is now mid-way through her investigative procedure, having completed four of the eight steps. She has

¹¹ McCain, *Nature of Scientific Knowledge*, 159.

¹² McCain, “Explanationism: Defended,” 339.

gathered and analyzed the appropriate evidence for these four steps, but has not yet gathered or analyzed evidence that may or may not arise during the final four steps. The list of suspects with which Sally began has been narrowed, and there is one very promising suspect in particular named Jeremy. In fact, the claim (call this the Jeremy hypothesis) is the best explanation available to Sally for all of the evidence she currently has obtained through the first four steps. There are multiple witnesses locating someone who fits Jeremy's description at the scene of the crime at the time at which it was committed. Some drug paraphernalia like that which Jeremy commonly uses to feed his drug habit was found at the scene of the crime. Jeremy seems to display a sense of satisfaction or gladness about the robbery. His bank account reflects a deposit shortly after the incident. Other current suspects, while not ruled out, do not fit the evidence Sally currently has anywhere nearly as well as Jeremy does. The Jeremy hypothesis is the best available explanation for the evidence Sally currently has and it is a very good explanation of that evidence.

But Sally isn't justified in believing the Jeremy hypothesis. For, she has good reason to think that there may very well be relevant evidence concerning the burglary that she does not currently have. After all, there have been many times in the past where, after completing step four of her investigation, things took a dramatic swing. It has not at all been uncommon that at these later stages in the process, an alternative suspect emerges who fits the data even better than previous suspects. Thus, while the Jeremy hypothesis is the best available explanation of the evidence Sally currently has, and while it is even a very good explanation of that evidence, Sally is not justified in believing this hypothesis. Believing the Jeremy hypothesis would be premature. The correct explanation for Sally's data may very well not be available at present, and she has good reason to think this.¹³

B&M claim that in this case the Jeremy hypothesis is the best explanation of Sally's evidence, but she is not justified in believing it. In light of this they claim that satisfying the conditions of explanationism is not sufficient for having justification.

In my previous defense of explanationism I pointed out that it seems B&M overlook the requirement that in order to truly satisfy explanationism the proposition (or hypothesis) in question must be part of the best explanation of *S's total evidence*.¹⁴ Importantly, I noted that the best explanation of one's total evidence does not have to be a specific hypothesis; it can be general. The upshot of this earlier discussion is that the explanationist can readily agree that the Jeremy hypothesis is part of the best explanation of a proper subset of Sally's evidence, but this does not pose a problem for explanationism because a more general

¹³ Byerly and Martin, "Problems for Explanationism," 783.

¹⁴ McCain, "Explanationism: Defended."

Kevin McCain

explanation is the best explanation of her total evidence. Hence, the Jeremy hypothesis does not satisfy the conditions of explanationism, and the fact that Sally is not justified in believing this hypothesis poses no problem for explanationism.

Despite my earlier attempt to assuage their worries, B&M remain unconvinced. They say, “The problem with McCain’s response is easy to spot...McCain has simply overlooked what we said.”¹⁵ B&M maintain that the Jeremy hypothesis is the best explanation of Sally’s evidence – it is superior to the sort of general hypothesis that I proposed. In support of this they point out that whereas a more general hypothesis such as <Some, as yet unknown, suspect committed the burglary> “does not predict all of the relevant data in the example...the Jeremy hypothesis does.”¹⁶ B&M point out that the more general hypothesis does not predict “Jeremy’s attitude, the facts about his bank account, the reports of eyewitnesses of someone fitting Jeremy’s description, or the presence of drug paraphernalia of the same kind known to be employed by Jeremy,” but, of course, the Jeremy hypothesis does.¹⁷ Consequently, B&M conclude that my attempt to defend explanationism fails because the Jeremy hypothesis really is the best explanation of Sally’s evidence, but she is not justified in believing that it is true.

Although B&M are certainly correct to emphasize that making accurate predictions is an important explanatory virtue, it seems that they may be fixating on this virtue to the exclusion of others. Additionally, they still seem to be failing to appreciate the qualification that explanationism is restricted to total evidence. In order to see these facts it will be helpful to flesh out some the details of B&M’s case and make things clearer.

Recall, B&M tell us that Sally has an eight-step process that she goes through when determining who committed a particular crime. Presumably, her process is very accurate when all eight steps are completed. At this point in the process, Sally has completed the first four steps and determined that Jeremy is by far the most likely suspect. B&M make it clear that while there are other suspects, which have not been conclusively ruled out, the claim that any one of these suspects committed the crime is an inferior explanation when compared with the claim that Jeremy committed the crime (the Jeremy hypothesis). They add to this that Sally has good reason to think that there is relevant evidence about the burglary that she currently lacks, “many times in the past” things change in the

¹⁵ Byerly and Martin, “Explanationism,” 204.

¹⁶ Byerly and Martin, “Explanationism,” 204.

¹⁷ Byerly and Martin, “Explanationism,” 204.

later stages of her process, and “it has not at all been uncommon that at these later stages in the process, an alternative suspect emerges who fits the data even better than previous suspects.” Given all of this information, it seems that Sally has two sets of evidence. On the one hand, she has E (her current evidence pertaining to the burglary from steps one through four). On the other hand, she has E* (evidence about how her investigative process works). B&M insist that explanationism has a problem because the Jeremy hypothesis is the best explanation of E – it predicts the relevant data and offers a better explanation than all its available rivals. Yet, they also maintain that Sally is not justified in believing the Jeremy hypothesis because of E*. What should an explanationist say in response?

The correct response here is simple. B&M’s case relies on ignoring the qualification that explanationism should be understood in terms of total evidence rather than just a portion of the evidence. The Jeremy hypothesis is the best explanation of E, but it is not the best explanation of Sally’s total evidence, which includes both E and E*. The reason for this is that Sally’s total evidence includes strong inductive evidence (E*) for thinking that the hypothesis that is the best explanation at step four in the process is not true. That is, Sally’s total evidence includes inductive evidence for thinking that the Jeremy hypothesis is not true. As B&M describe this case Sally’s inductive reasons are strong enough to make it so that she should not believe the Jeremy hypothesis. If this is so, then it is plausible that the Jeremy hypothesis is not the best explanation of Sally’s total evidence. Instead, Sally’s total evidence is better, or at least equally well, explained by the more general hypothesis <Some, as yet unknown, suspect committed the burglary>. After all, B&M tell us that “it has not at all been uncommon that at these later stages in the process, an alternative suspect emerges who fits the data even better than previous suspects.”

Of course, one might complain, as B&M do, that the explanationist cannot plausibly maintain that the general hypothesis <Some, as yet unknown, suspect committed the burglary> is a better explanation than the Jeremy hypothesis. The Jeremy hypothesis explains relevant data that the general hypothesis does not – all sorts of facts about Jeremy, his bank account, and so on. B&M go so far as to claim that the Jeremy hypothesis predicts “*all* of the relevant data.”¹⁸ Consequently, one might maintain that while it is true that Sally should not believe the Jeremy hypothesis, explanationists cannot plausibly claim this because the Jeremy hypothesis is the best explanation of Sally’s evidence.

¹⁸ Byerly and Martin, “Explanationism,” 204. My emphasis.

There are two problems with this complaint. First, contrary to what B&M claim, the Jeremy hypothesis does not predict *all* of the relevant data. It is true that the Jeremy hypothesis predicts much (or perhaps all) of E, but this is not all of the relevant data! Sally's total evidence includes E and E*. The Jeremy hypothesis does not predict E*. This evidence is better explained by the general hypothesis. So, the fact that the Jeremy hypothesis predicts a portion of Sally's evidence should not be taken to be conclusive evidence for thinking that it is the best explanation of her total evidence.

Second, while predicting relevant data is an important explanatory virtue, it is not the only virtue. Fixating on the Jeremy hypothesis' ability to predict a portion of Sally's evidence is a mistake. There are many other explanatory virtues. An important explanatory virtue that bears particularly on this case is conservatism, or fit with background information. Although the Jeremy hypothesis is an excellent explanation when we consider only E, it is not a very good explanation when we consider Sally's total evidence because it fails to fit with her background information about how her investigative process tends to turn out. To see how background evidence can affect the quality of an explanation, consider a situation where you see a particular object. This object looks like a duck, quacks like a duck, walks like a duck, and so on. The best explanation of this information taken in isolation is that the object you see is a duck. However, this is not the best explanation when you add more details such as that you know that you are near a factory that produces large quantities of robotic duck decoys that are very hard to distinguish from real ducks, you are currently in the middle of the desert where ducks cannot survive, and so on. Although the 'duck hypothesis' predicts a lot of your evidence, its failure to fit with background evidence makes it a poor explanation overall. Similar considerations apply to B&M's Jeremy hypothesis. There are good grounds for denying that the Jeremy hypothesis really is the best explanation of Sally's *total* evidence. As a result, explanationism is not threatened by B&M's attack on its sufficiency.

3. The Attack on Necessity

Much of the recent debate concerning whether explanationism provides a necessary condition for justification has focused on the justification we have for beliefs about the future.¹⁹ B&M seem to accept that while earlier incarnations of explanationism did not adequately account for the justification that we have for

¹⁹ See Byerly, "Beliefs about the Future," Byerly and Martin, "Problems for Explanationism," McCain, "Beliefs about the Future," McCain, *Evidentialism*, and McCain, "Explanationism: Defended."

believing things about the future, the formulation of explanationism above does.²⁰ Nevertheless, they claim that explanationism still faces problems when it comes to providing a necessary condition for justification. Specifically, B&M argue that cases involving mathematical/logical entailment pose an insuperable problem for explanationism.

B&M's most recent discussion of cases of mathematical/logical entailment is very helpful.²¹ In fact, their discussion has led me to recognize that my previous treatment of this sort of case needs revision.²² Previously, I attempted to account for the justification that we have for beliefs concerning the conclusion of inferences involving appeals to mathematical/logical entailment solely in terms of explanationism's first condition, (i). B&M, however, have helped me see that this is not the best way to understand mathematical/logical entailments when they are combined with empirical claims.

Although B&M are correct in claiming that my earlier discussion of these cases in this journal is problematic, they are mistaken in thinking that explanationism lacks the resources to adequately accommodate cases of mathematical/logical entailment. Rather than simply discuss this issue in the abstract or go back to discussing cases that I have dealt with before, I will explain how explanationism does provide the correct results in this sort of case by examining B&M's latest example – a case that they claim poses a problem for all explanationist views, not just explanationism as formulated here.

B&M make use of 'surprising correlations' to press their objection to the necessity of explanationism. Here is their case:

Most years between 1999 and 2009 where Nicholas Cage appeared in at least 2 films were years between 1999 and 2009 where there were at least 98 drownings, and most years between 1999 and 2009 where there were at least 98 drownings were years between 1999 and 2009 where Cage appeared in at least 2 films. Now, imagine that someone, Joe, comes to know this fact, but does so without coming to know the number of Cage films and drownings for any particular year. Suppose next that Joe learns that in some particular year in the interval, say 2006, Cage was in at least 2 movies. Depending upon exactly the strength of the correlation and the appropriate threshold for justification, it is plausible that Joe would be justified in believing that in 2006 there were at least 98 drownings.²³

In my previous article in this journal I offered a way of responding to similar cases that would suggest the following way of accounting for Joe's

²⁰ Byerly and Martin, "Explanationism."

²¹ Byerly and Martin, "Explanationism."

²² McCain, "Explanationism: Defended."

²³ Byerly and Martin, "Explanationism," 211.

justification.²⁴ According to my earlier suggestion, Joe is justified in believing <There were at least 98 drownings in 2006> because this proposition is part of the best available explanation of his evidence. The reason I offered for this is that the truth of <There were at least 98 drownings in 2006> is part of the best available explanation for why Joe is aware, or has a seeming, that <There were at least 98 drownings in 2006> follows from items of his evidence – namely, <most years between 1999 and 2009 where there were at least 98 drownings were years where Cage appeared in at least 2 films> and <In 2006 Cage appeared in at least 2 films>. As B&M point out, though, this is not quite right. The best explanation of Joe’s awareness/seeming is not that <There were at least 98 drownings in 2006> is true. As they aptly note, Joe’s seeming that <There were at least 98 drownings in 2006> follows from his evidence “isn’t explained by there being 98 drownings in 2006. Indeed, the seeming would persist even if there were no Cage films or drownings. It is just a seeming about what makes what probable, not about what there is in the world.”²⁵ So, my previous response to this sort of case will not work.

Fortunately, the problem with my earlier response is not the result of any failing of explanationism. Explanationism has the means of providing the correct result in these cases in a plausible manner. Essentially, the problem is simply that my previous response cut out important steps. Here is what an explanationist should say about B&M’s case. Part of the best available explanation of Joe’s evidence is that, as noted above, <There were at least 98 drownings in 2006> follows from <most years between 1999 and 2009 where there were at least 98 drownings were years where Cage appeared in at least 2 films> and <In 2006 Cage appeared in at least 2 films>. It is also part of the best available explanation of Joe’s evidence that <most years between 1999 and 2009 where there were at least 98 drownings were years where Cage appeared in at least 2 films> is true. After all, B&M tell us that Joe *knows* this fact to be true. Additionally, <In 2006 Cage appeared in at least 2 films> is part of the best explanation of Joe’s evidence too because B&M inform us that Joe has learned this fact as well. So, Joe has as part of the best explanation of his evidence that <most years between 1999 and 2009 where there were at least 98 drownings were years where Cage appeared in at least 2 films> is true, <In 2006 Cage appeared in at least 2 films> is true, and <There were at least 98 drownings in 2006> follows from these propositions. It is exceedingly plausible that <There were at least 98 drownings in 2006> is true is available to Joe as an explanatory consequence of the best explanation available to him for his evidence. The truth of <There were at least 98 drownings in 2006> is

²⁴ McCain, “Explanationism: Defended.”

²⁵ Byerly and Martin, “Explanationism,” 211.

much better explained by the best explanation of Joe's evidence than its denial is. The best explanation of Joe's evidence provides a very good explanation of <There were at least 98 drownings in 2006>, but a very poor explanation of its denial.²⁶ In light of this, according to the second condition, (ii), of explanationism, Joe is justified in believing <There were at least 98 drownings in 2006>. The problem with my earlier response was that it focused solely on (i) of explanationism for handling this sort of case, but the full story makes use of (i) and (ii). This is the key insight that B&M's discussion illuminates. Nonetheless, explanationism yields the intuitively correct result.

What is the upshot here? B&M's arguments are helpful in that they move the discussion of explanationism forward by making it clear that my earlier response fails to express how explanationism should be understood to handle cases involving mathematical/logical entailments when they are combined with empirical claims. However, at the end of the day explanationism has the tools necessary for providing the correct result in this sort of case. So, B&M's attack on the necessity of explanationism, like the attack on sufficiency, fails. Thus, despite B&M's assertion that explanationism faces 'persistent problems on both sides,' explanationists should remain undaunted.²⁷

²⁶ As I have noted in various works this is perhaps best accounted for by the commonly accepted fact that higher probabilities explain better than lower ones. See Michael Strevens, "Do Large Probabilities Explain Better?" *Philosophy of Science* 67 (2000): 366-390 for arguments in favor of this fact about explanations. Also, see Jonah Schupbach and Jan Sprenger, "The Logic of Explanatory Power," *Philosophy of Science* 78 (2011): 105-127 for defense of an account of explanatory power on which higher probabilities offer greater explanatory power.

²⁷ I am grateful to Matt Frise, Jon Matheson, and Ted Poston for helpful comments and discussion.