

Review of Ted Poston's Reason and Explanation: A Defense of Explanatory Coherentism

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In *Reason and Explanation*, Ted Poston proposes and defends a version of explanatory coherentism on which epistemic justification is determined by the extent to which a system of belief is explanatorily virtuous, both in itself and as compared with competing systems of belief. Poston is following in the footsteps of no less influential thinkers than Willard van Orman Quine, Gilbert Harman, and William Lycan. It is to Poston's great credit that his book adds valuable insights to those already present in the literature on the epistemic significance of coherence and explanation. While I have some reservations about Poston's version of explanatory coherentism and the arguments he marshals in support of it (to be detailed below), I predict that Poston's book will promote valuable discussion on a topic that is of central importance to large parts of epistemology and philosophy of science.

In epistemology, coherentism is the view that the epistemic justification for believing a proposition is a matter of fitting in, i.e. cohering, with other propositions one believes. Coherentism is commonly contrasted with foundationalism, which holds that some propositions, e.g. purely observational claims, are justified independently of other propositions and yet serve as the potential reasons for believing other propositions. For foundationalists, justification ultimately bottoms out in some non-propositional states such as direct perceptions and/or *a priori* intuitions. Since coherentism denies that there are any justifying non-propositional states of this kind (or that there could be infinite

justificatory chains), it has seemed to many that coherentism is forced to say that justification can have a circular structure – where p_1 is justified by p_2 , p_2 is justified by p_3 , ..., and p_n is justified by p_1 .

One of Poston's achievements in this book is showing clearly that coherentists are not committed to justification having this implausible structure. On Poston's coherentist account of epistemic reasons, which extends Jonathan Kvanvig's coherentist account of appearance states, a proposition p_1 is an epistemic reason for another proposition p_2 just in case (i) one is justified in believing p_1 , and (ii) p_1 is an insufficient, nonredundant part of a larger set of justified propositions that are unnecessary but sufficient for justifying p_2 (p. 58). As Poston emphasizes, the second condition implies that 'is a reason for' is a three-place relation in that p_1 is a reason for p_2 only relative to a set of (justified) background beliefs. This is a coherentist view in that justification is claimed to be relative to a system of background beliefs, and yet it does not imply that justification would have to have the circular structure often associated with coherentism. Later in the book, Poston supports this coherentist view with extended arguments against a classical version of foundationalism defended in Laurence Bonjour's recent work. This lucid discussion should be of interest to anyone working on issues relating to the structure of justification.

Any coherentist must at some point say what its notion of 'coherence' amounts to on their view. Poston follows a number of other authors in taking coherence to be linked with so-called *explanatory virtues*. Many authors who appeal to explanatory virtues in epistemology and philosophy of science do not provide a fixed list of the virtues with which they are operating. Poston refreshingly claims that there are exactly three such virtues: *simplicity*, *explanatory power*, and *conservativeness*. One might worry that only the second of these virtues is 'explanatory' in any robust sense of that term – after all, one

might think that simplicity and conservativeness are also virtues of non-explanatory theories if they count as virtues at all. However, the terminological issue of whether these virtues should all count as an explanatory is of little consequence in this context. What is more important is how Poston understands these three virtues and whether, so understood, they really do help to justify a given system of beliefs.

In this regard, I have reservations about Poston's discussion of all three virtues. In his discussion of simplicity, Poston starts by noting that it is standard for authors to distinguish ontological simplicity (parsimony) from syntactic simplicity (elegance). At first blush, however, acknowledging that there are two distinct kinds of simplicity would conflict with the rest of Poston's discussion of explanatory virtues, since if 'simplicity' refers to two distinct explanatory virtues we would have a sum total of four such virtues instead of three. More importantly, it has seemed implausible to most authors that elegance could provide much of an epistemic (as opposed to pragmatic) justification for accepting a theory. Poston is presumably hoping to preempt this worry when he says:

I doubt that there is a clear division between elegance and parsimony. Elegance is a feature of the formulation of the theory's principles, but a theory's principles are its laws. The form and number of laws is a matter of qualitative parsimony. (p. 83)

I disagree. Suppose we have two equivalent theories T_1 and T_2 that are known to differ only in terms of how the theories are formulated, with T_1 being more elegant than T_2 . Arguably, Schrödinger's wave mechanics and Heisenberg's matrix mechanics fits this description, since the two versions of quantum mechanics are known to be equivalent but Schrödinger's formulation is generally considered syntactically simpler, i.e. more elegant. However, since the theories are equivalent and hence posit the exact same entities, properties, etc., it would surely be wrong to say that either theory is more parsimonious than the other. Indeed, given Poston's commitment to parsimony being an

epistemic reason to believe a theory, this would mean that one could have greater epistemic reasons to believe T_1 than T_2 even if one knows that T_1 and T_2 are equivalent. That cannot be right.

The second of the three virtues is explanatory power. This virtue measures the extent to which a theory or hypothesis is able to explain a wide range of phenomena. Appealing to explanatory power immediately raises the question of what it is to *explain* something – a question that has occupied philosophers of science since the middle of the 20th century. Unfortunately, many epistemologists who appeal to explanatory considerations say little if anything to address this question. To Poston's credit, he offers a novel account of explanation in his book, even though the account itself ultimately implies that there isn't much to say about the subject. Poston refers to this account as *primitivism* about explanation; it holds that “there is no analysis of explanation having this form: a group of statements ϕ explain another statement ψ if and only if X , where X is some set of non-trivial conditions.” (p. 74) This position is meant to be analogous to Timothy Williamson's controversial thesis that knowledge is unanalyzable.

Those who are familiar with the debate about the nature of explanation in philosophy of science are likely to find Poston's arguments for this view too quick. A large part of the motivation for Poston's primitivism about explanation seems to come from his claim that the literature on explanation has so far not given us an adequate analysis of it. In this regard, Poston's case for primitivism is supposed to be analogous to Williamson's case for knowledge being unanalyzable (pp. 70-73). Given that Poston's own account of explanation is at least partly motivated by a failure of previous accounts, it is frustrating that the only accounts of explanation Poston discusses are Carl Hempel's original DN-account and the early causal accounts of Wesley Salmon and Michael Scriven. It is also surprising to see that Poston does not even mention the unificationist

accounts of explanation developed by Michael Friedman, Philip Kitcher, and others. This is especially unfortunate since many things Poston says about explanation – e.g. the discussion of mathematical explanation – suggests that a unificationist account of explanation would fit nicely inside his coherentist epistemology. Indeed, even if the unificationist account fails as a general analysis of explanation, it may well serve as a plausible account of the type of explanation that is relevant to explanatory coherence.

Finally I turn to what will surely be most controversial of Poston's explanatory virtues, conservativeness. (Although Poston refers to conservativeness as a virtue later in the book, he usually refers to it as an epistemic principle, conservatism. I will follow Poston in this regard and assume that the principle translates into the corresponding virtue in some way.) The general idea behind epistemic conservatism is that the mere fact that one believes some proposition confers some positive epistemic status on the proposition. For Poston, the plausibility of explanatory coherentism of the kind espoused by Quine, Harman, Lycan, and himself depends on there being a defensible version of conservatism; accordingly, Poston devotes all of chapter 2 to this topic. The specific kind of conservatism that Poston defends restricts the principle to cases in which one lacks any evidence for or against a proposition *p*; Poston refers to these as cases of *empty symmetrical evidence* (p. 21). Poston points out that this excludes cases in which one has some evidence for *p* but equally weighty evidence against *p* such that one's total evidence favors neither *p* nor not-*p*. I'll refer to this as cases of *non-empty symmetrical evidence*. At any rate, Poston's version of conservatism merely claims that when a subject lacks any evidence for or against *p* (i.e. when she is in a case of empty symmetrical evidence), her belief that *p* provides some justification for a (continued) belief that *p*. Poston stresses however, that the justification provided in this way would not by itself be sufficiently robust to warrant asserting *p* (p. 28-30).

In my view, Poston's conservatism is subject to a serious objection. I will get to this criticism shortly, but first I want to suggest that even if epistemic conservatism were true it would be unable to do the work that Poston demands of it in *Reason and Explanation*. Poston argues that his explanatory coherentism is superior to the type of evidentialism developed by Earl Conee and Richard Feldman in virtue of how the two views handle the notorious *problem of forgotten evidence* (pp. 97-98). In the problem cases in question, one justifiably forms a belief on the basis of strong evidence, but then subsequently forgets the evidence while retaining the belief. For example, suppose Sally forms the belief that broccoli is healthy on the basis of an article in the Science section of the *New York Times*, but then forgets the basis of the belief while continuing to believe that broccoli is healthy. Intuitively, Sally would still be justified in believing that broccoli is healthy, even though she now appears to have no evidence for it. Poston claims that his explanatory coherentism solves the problem here since epistemic conservatism implies that the subject's belief (which was retained as the evidence was forgotten) itself justifies the continued belief.

The problem with this response to the problem of forgotten evidence is that it only works if we assume that the subject is really in a case of empty symmetrical evidence. For any case in which a subject has any kind of evidence for or against a proposition, Poston's epistemic conservatism does not apply. So consider the following specification of the case described above: Suppose Sally initially had some additional pieces of evidence for and against the proposition that broccoli is healthy which make her situation before reading the *Times* a case of non-empty symmetrical evidence. (These additional pieces of evidence might consist of (a) the fact that Sally's mother told her that vegetables are generally healthy and (b) the fact that Sally's father told her that green food is generally unhealthy.) If Sally does not forget these pieces of evidence as well as

what she read in the *New York Times*, Sally will eventually end up in a case of non-empty symmetrical evidence vis-a-vis the proposition that broccoli is healthy after forgetting about reading the article in the *Times*. Thus, Sally ends up being in a case where Poston's conservatism does not provide her with any justification for continuing to believe that broccoli is healthy. However, it seems just as problematic to say that the subject lacks justification in this case as in the original case.

The upshot is that Poston's epistemic conservatism, even if true, is not strong enough to do the work that Poston needs it to do in order to motivate his explanatory coherentism over Feldman and Conee's evidentialism by appealing to the problem of forgotten evidence. Poston could of course respond to this objection by strengthening the principle, e.g. by having it apply to all cases of non-symmetrical evidence (including non-empty symmetrical evidence). As Poston recognizes, however, a stronger principle would be harder to defend against a host of worries (p. 21-23). Furthermore, I don't think that even this stronger principle would be suited to do the required work. Suppose that before picking up the *New York Times* Sally reads an academic paper by a nutrition scientist in which it is convincingly argued that 51% of all commonly eaten vegetables are healthy. Sally retains this piece of evidence along with her belief that broccoli is healthy while forgetting what she read in the *Times*. Thus Sally's evidence at the end of this episode is not symmetrical vis-a-vis the proposition that broccoli is healthy, although it is also surely not sufficient for her to count as being *justified* in believing that broccoli is healthy in any standard sense of the term. Of course, Sally would have *some slight justification* for her belief, but the issue brought out by the problem of forgotten evidence is that according to some theories of justification, her belief would no longer be justified in the standard unqualified sense in which Sally's belief was justified before she forgot that she read the article in the *Times*. For exactly the same reasons as before, that

implication still seems problematic.

So I am skeptical that even this stronger version of Poston's epistemic conservatism would solve the problem of forgotten evidence. Of course, this does not entail that epistemic conservatism is false – only that Poston's explanatory coherentism is not superior to standard evidentialist views in this regard. However, I also think there are good independent reasons to reject Poston's epistemic conservatism. My worries are nicely brought out by an objection that Poston explicitly addresses:

[According to epistemic conservatism] it ... looks as if one can acquire positive evidence for p but decrease one's overall evidence for p . If one is in the state of merely believing p but then one acquires weak evidence for p then it looks like the appropriate response is to believe p to the degree one's evidence now warrants and that may well be less than one's original conservative justification. (p. 35)

Poston offers two replies to this objection. The first reply invokes Bayesianism: “Bayesianism implies that sometimes acquiring positive evidence for p can decrease one's overall justification for p .” (p. 36) If Poston were right that Bayesianism had this strange implication, I would take that to be an important reason to reject Bayesianism as an account of epistemic justification. Fortunately for Bayesianism, however, it does not have this implication. For Bayesians, “positive evidence for p ” amounts to evidence that raises the probability of p relative to one's background evidence, while “overall justification for p ” amounts to the probability of p given one's total evidence. Since some evidence raising the probability of p relative to background evidence (trivially) entails that the evidence increases the probability of p given one's total evidence, it follows that acquiring positive evidence for p cannot decrease one's overall justification for p according to Bayesianism.

Why would Poston think otherwise? His reasons are contained in the following

passage:

Suppose one has good grounds for believing that it is a natural laws that 'all Fs are Gs.'
One thus has good grounds for believing that all Fs are either Gs or Hs, where G and H are incompatible properties. But then one acquires evidence that some F is an H. This is positively relevant to the proposition that all Fs are either Gs or Hs, but it decreases one's overall justification for that claim. (p. 36)

Poston goes on to explain why Bayesianism implies that the evidence in question would decrease one's overall justification for the claim that all Fs are either Gs or Hs. Roughly, it's because in learning that there are Fs that aren't Gs one also learns that the initial supposition that it is a law that all Fs are Gs is false, which in turn undermines one's justification for the claim that all Fs are either Gs or Hs.

Poston is correct that Bayesianism does indeed imply that evidence of this sort may decrease one's overall justification for the relevant proposition (in the sense that it decreases its probability given one's total evidence). However, Poston is wrong in claiming that the evidence in question – i.e. evidence that some F is an H – is “positively relevant” to the proposition that all Fs are either Gs or Hs. This evidence is not positively relevant according to Bayesianism because it fails to raise – indeed, it lowers – the probability of the proposition in question given background evidence. The confusion here arises because it may *appear* that finding an instance of an F that is an H would have to be positive evidence for the generalization 'all Fs are either Gs or Hs', since the instance in question *falls under* the generalization. More generally, it may appear that a proposition of the form 'this A is a B' would have to be positive evidence for a generalization of the form 'All As are Bs'. However, Bayesianism has the (perhaps surprising) implication that this is false – on Bayesianism, instances of generalizations need not provide positive evidence for those generalizations; indeed, such instances can

even provide evidence against the relevant generalizations. So the case Poston describes is not one in which positive evidence for p decreases one's overall justification for p according to Bayesianism, but rather a case in which an instance of a generalization does not provide positive evidence for it.

As noted above, Poston offers another reply to the objection:

[T]he objection requires that there is a number, n , that gives the level of justification one has via conservatism, and another number, m , that gives the positive level of justification one has by the weak evidence, and that $m < n$. [...] I doubt that one can think of conservative justification as providing some specific level of credence given by some real number. Conservative justification is best explained as a factor that makes continued acceptance rational rather than a strength of evidence factor. (p. 35)

Contra Poston, however, the objection clearly does not require that levels of justification correspond to real numbers. (For one thing, this implies that there are infinitely many levels of justification, whereas the objection only requires that there are two levels – 'more justified' and 'less justified'. That said, the objection is certainly compatible with there being more than two justificatory levels, including infinitely many levels.) Even more puzzling is why Poston takes the objection's commitment to there being different levels of justification before and after obtaining the weak evidence to imply that the justification that is supposedly conferred on the belief by the mere fact that it is believed would have to be “a strength of evidence factor” rather than “a factor that makes continued acceptance rational”. In order to clarify why I do not think this implication holds – and why that matters to the soundness of the objection – I will now modify the original objection by explicitly taking epistemic conservatism to be something that “makes continued acceptance rational”.

Suppose you are in a case of what Poston calls empty symmetrical evidence

with respect to p , but you also strongly believe p . For example, suppose p is the proposition that in a local election in a town of which you know nothing, candidate A will get more votes than candidate B; for whatever reason, however, you are certain that A will get more votes than B. According to Poston's conservatism, you would then have some justification for believing p , i.e. that A will get more votes than B (even though this justification is not of the kind that warrants asserting p). However, now suppose you obtain some very weak evidence for p . For example, suppose you learn that a random person interviewed on the street in this town voted for A. When you learn this, you are no longer in a case of empty symmetrical evidence with respect to p , so Poston's conservatism no longer applies to help justify the belief. Indeed, you are not in a case of symmetrical evidence at all since the only evidence you now have is positively relevant to p (even if very weakly so).

Now, as I have set up this case, it surely follows from Poston's conservatism that you are in a worse (or at least not better) epistemic position with regard to p than you were before. After all, the justification that Poston claims is conferred on you before obtaining the evidence by his conservatism (what Poston calls "conservative justification" in the passage quoted above) is supposed to make your acceptance of p rational; but it is clearly not rational to accept p based on a report of a single person voting for A. Hence, Poston's conservatism implies that your epistemic situation with regard to p has gotten worse (or at least not better). And yet the only thing that happened in the intervening period is that you gained some evidence in support of p . The upshot, then, is that Poston's conservatism implies that an agent may worsen her epistemic situation with regard to accepting p by collecting evidence that supports p .