CRITICAL NOTICES

For Crying Out Loud

Marc Lange

Calling for Explanation
By Dan Baras
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1. Introduction

I was born on November 22, 1963. Later that day, President Kennedy was assassinated. This coincidence does not cry out for any special explanation. But it led me as a young child to become interested in US Presidents and their assassinations. I was especially intrigued by what were then widely publicized as a series of striking correspondences between Presidents Lincoln and Kennedy, such as these facts:

- Both were assassinated on Fridays by gunshots to their heads.
- Both assassins were Southerners.
- Both assassins had three-word names ('John Wilkes Booth' and 'Lee Harvey Oswald'), each containing fifteen letters.
- The names 'Lincoln' and 'Kennedy' each contain seven letters.
- Both Lincoln and Kennedy were elected to Congress in years ending in '46' and to the presidency in years ending in '60'.
- Both had Southern Democratic former senators named 'Johnson' (with six-letter first names and born in years ending in '08') as their vice presidents.
- Lincoln was shot in Ford's Theater while Kennedy was shot while riding in a Lincoln automobile manufactured by Ford Motors.

Do these correspondences cry out for some special sort of explanation?

Scientists (and historians, philosophers and others who rationally reconstruct episodes of scientific reasoning) often characterize various facts as 'calling for', 'crying out for' or 'demanding' some special explanation, taking this consideration as confirming the truth of those theories that would provide such explanations. For instance, Darwin cited many striking regularities in the anatomy, embryology and geographic distribution of living things (and also cited regularities involving fossils) as calling for special explanation – and as thereby supporting his theory of evolution by natural

selection over the theory that God created each species individually. For instance:

> It is a truly wonderful fact – the wonder of which we are apt to overlook from familiarity – that all animals and all plants throughout all time and space should be related to each other in groups, subordinate to groups, in the manner which we everywhere behold. … If species had been independently created, no explanation would have been possible of this kind of classification; but it is explained through inheritance and the complex action of natural selection. (Darwin 1873: 104; cf. 365, 369)

Unpacking this sort of reasoning, Eldredge (2005: 80) invoked the notion of 'calling for explanation': 'Darwin saw patterns in nature that cried out for explanation'.

Do the various regularities cited by Darwin (e.g. that fossil remains and modern species found on the same continent resemble each other) cry out for special explanation more strongly than the Lincoln-Kennedy correspondences do?[1] If so, why? Baras devotes *Calling for Explanation* to a lively and thought-provoking examination of this sort of question and of various arguments that appeal to some fact's calling for explanation. Baras was motivated to examine 'calling for explanation' by its recent philosophical uses – especially in fine-tuning arguments for God's existence and in arguments against mathematical Platonism (such as that the coordination that Platonism posits between mathematical abstracta and our mathematical beliefs would cry out for explanation but have no plausible explanation).

2. *The striking principle*

Baras organizes his book around what he calls 'the striking principle', which consists of two claims:

(1) There is a property that some facts have more than others, strikingness, which determines the fact's degree of calling for explanation.
(2) To the extent that a purported fact E is striking, we have reason to believe that it has an explanation of a special kind. (Baras 2022: 33)

The striking principle is supposed to underwrite only one kind of epistemic reason among others; the support thereby provided for some theory that would supply some striking fact E with a special kind of explanation can be overridden by other evidence against that theory (and, presumably, need not be strong enough by itself to justify believing in the theory). Baras emphasizes that this 'principle' offers no specification of what the property of

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1 I certainly think so! Regarding the Lincoln-Kennedy correspondences, see Martin 1998: 26.

strikingness amounts to (or of what would count as evidence that E possesses it) and offers no specification of what would make an explanation 'special'. The striking principle is 'a schema waiting to be filled in' rather than a 'substantive thesis' (Baras 2022: 33).

One of Baras's main contentions is that there is no general non-trivial striking principle as 'an independent principle of reasoning' (Baras 2022: 165; cf. 132, 139):

> There are no unique 'calling for explanation' justifications; rather, we should seek justifications elsewhere, employing principles of probabilistic reasoning, enumerative induction from previous observations, simplicity, and the like. (Baras 2022: 161)

As he argues for this view, one of Baras's principal strategies is to take an argument that seems to employ the striking principle, to show how the argument actually operates, and to reveal thereby that there is no work in it for the striking principle to do. For example, Baras (2022: 128–33) compares the case of an ordinary-looking coin tossed 100 times and yielding a strictly alternating heads-tails sequence to the case of an ordinary-looking coin tossed 100 times and yielding a messy, random-looking sequence. It might seem that we regard the first outcome as striking, unlike the second, and use the striking principle to strongly confirm in the first case (but not the second) that the outcome has a 'special explanation'. However, Baras argues that once 'special explanation' is precisified in this case to mean an explanation positing some natural constraint or human manipulation that is nearly certain to produce a strictly alternating outcome, then it is evident that the striking principle is dispensable to this reasoning. Instead, the argument depends on our past experience (involving many phenomena) that the alternating outcome E (unlike the messy outcome) is the simple sort of result that tends to be produced by natural constraints. It is also an outcome having human significance (unlike the messy outcome) and so is the sort of result that tends to be produced by human manipulation. Therefore, if C is that the coin is fair and each toss is independent, then even if a rational agent's initial credence $pr(C)$ is very high, $pr(E|{\sim}C)$ is so much higher than $pr(E|C)$ that $pr({\sim}C|E)$ will exceed $pr(C|E)$ and so, by Bayesian updating, a rational agent who takes E into account will then regard $\sim C$ as more plausible than C. There is no need to appeal to an independent striking principle.[2]

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2 More precisely, Baras (2022: 131) derives that $pr({\sim}C|E) > pr(C|E)$ iff $pr(E|{\sim}C)/pr(E|C) > pr(C)/pr({\sim}C)$. He makes unnecessarily heavy weather of this derivation: starting with Bayes's theorem, multiplying both sides by $2pr(E)$, expanding according to the theorem of total probability, subtracting $pr(E|C)pr(C)$, dividing, and so on. The desired result can be derived more directly: by Bayes's theorem applied to the numerator and to the denominator, $pr(C|E)/pr({\sim}C|E) = pr(C)pr(E|C)/pr({\sim}C)pr(E|{\sim}C)$, so $pr({\sim}C|E) > pr(C|E)$ iff $1 > pr(C)pr(E|C)/pr({\sim}C)pr(E|{\sim}C)$, i.e., iff $pr(E|{\sim}C)/pr(E|C) > pr(C)/pr({\sim}C)$.

It seems to me that such arguments, taken by themselves, do not get us very far. An 'independent' striking principle on a par with Bayesian conditionalization (according to Bayesians) seems very implausible. A fan of strikingness would presumably intend any striking principle, as applied in a given case, to have a justification resting on other principles of reasoning and the background knowledge available in that case, rather than to be fundamental (Baras himself discusses the distinction between fundamental and derivative epistemic principles in Chapter 2). So an argument using Bayesian conditionalization and our background knowledge to supply the same result that the striking principle is supposed to yield could be seen as a vindication of that principle rather than as a demonstration that we should not appeal to it.

Let me unpack this point by offering an analogy. Consider a 'diversity-of-evidence principle', which (like the striking principle) consists of two claims:

(i) There is a property that some bodies of evidence have more than others, diversity (a.k.a. variety).

(ii) To the extent that a body E of evidence is diverse, we have reason to believe that it is more powerful evidence in favour of a hypothesis that it confirms.

For example, consider the hypothesis H that, whenever a given vaccine is administered, it immunizes the patient from a given disease. The diversity principle underwrites the way that we regard the hypothesis as better confirmed by a trial of 100 patients (all of whom received the vaccine and were rendered immune) if those patients are more diverse (that is, of various genders, ages, risk factors, ancestries) than if those patients are less diverse (all healthy white men aged 30–35).

Presumably, the diversity principle is not fundamental. It has been thought to have the following Bayesian reconstruction (Horwich 1982: 118–22). By Bayes's theorem, for a set of mutually exclusive and collectively exhaustive rival hypotheses H, H', H'', … , where $\mathrm{pr}(E|H) = 1$, $\mathrm{pr}(H|E) = \mathrm{pr}(H)/\mathrm{pr}(E) = \mathrm{pr}(H)/[\mathrm{pr}(E|H)\mathrm{pr}(H) + \mathrm{pr}(E|H')\mathrm{pr}(H') + \mathrm{pr}(E|H'')\mathrm{pr}(H'') +…]$. By Bayesian conditionalization, H is confirmed more strongly insofar as the denominator's sum is smaller. A term in that sum will make a significant contribution to it only if both factors in the term are large – that is, only if the given rival to H makes E likely and is itself antecedently plausible. But insofar as E is diverse, E is unlikely on any plausible rival. In our example, the plausible rivals include the hypothesis that the vaccine works for men but not for women, the hypothesis that the vaccine works for adults but not for children and so forth. Diverse evidence includes individuals from all of these groups, so the evidence (consisting of individuals all of whom were immune after receiving the vaccine) is unlikely on any of those hypotheses.

This sort of argument shows that no separate 'diversity principle' needs to be posited; the diversity principle is dispensable. But far from undermining

appeals to diversity, this argument vindicates them, showing why they are justified and useful. In the same way, Baras's arguments that a separate striking principle is dispensable seem to me to do little by themselves to undermine our thinking about some episodes of confirmatory reasoning as appealing to certain facts as crying out loudly for explanation.

Another reason (it seems to me) to doubt from the outset that there is a separate striking principle is that presumably, whatever the reasoning may be behind expecting some fact to have a 'special' explanation, an analogous sort of reasoning lies behind expecting some other fact to have a 'non-special' explanation. If it is our background knowledge of the 'special' explanations of various facts similar to E (in certain respects that we justly deem relevant) that justifies our confidence that E has a 'special' explanation, then it is our background knowledge of the 'non-special' explanations of various facts similar to E' that in the same way justifies our confidence that E' has a 'non-special' explanation. So there would be no separate principle covering just the case of striking facts.

3. Strikingness

The diversity principle is like the striking principle in another respect: just as the striking principle leaves unspecified what property of a fact 'strikingness' denotes (and what it is for an explanation to be 'special'), so the diversity principle leaves unspecified what property of a body of evidence 'diversity' denotes. Baras could point to the following difference between his sort of argument for the striking principle's dispensability and the argument that I gave above for the diversity principle's dispensability. My argument reveals what the 'diversity' of a body of evidence E amounts to (or, at least, reveals a necessary condition for a body of evidence to be highly diverse): E's being unlikely on each plausible rival to H. My argument thereby reveals why a body of 100 patients does not qualify as more 'diverse' in virtue of the fact that it includes individuals born on each of the seven days of the week: because the hypothesis that (for instance) the vaccine works on individuals born on Tuesdays, but not on individuals born on Thursdays, is not a plausible rival to H. The Bayesian reconstruction of 'diversity' thus tells us how diverse and non-diverse bodies of evidence differ and what reasons we should give for characterizing some body of evidence as highly diverse (or as lacking in diversity). The Bayesian reconstruction of diversity thereby tells us how appeals to diversity should structure our reasoning: what evidence we should give for them and what relevance they have to confirmation. By contrast (I believe that Baras (2022: 89) would say), the Bayesian reconstructions of appeals to strikingness reveal nothing about what is supposed to make one fact more striking than another. From the Bayesian reconstructions, we do not learn what strikingness *is* (and why it makes a difference to confirmation)

in the way that we learned (according to the above argument) what diversity *is* (and why it matters).

Indeed, throughout his book Baras argues that there is no single, separate unified property denoted by being a 'striking' fact (or by being a 'special' explanation). He argues very cogently against some initially attractive interpretations of strikingness; *E*'s being antecedently unlikely, for instance, turns out to be neither sufficient nor necessary for *E*'s being striking (Baras 2022: 71–79, 89). Some of Baras's other arguments against various possible interpretations of '*E* is striking' (as used in connection with confirmation) seem to me less successful. For instance, Baras considers interpreting '*E* is striking' as meaning roughly, 'We have an epistemic reason to believe that *E* has a special kind of explanation.' Although this sense is 'the meaning of "calling for explanation" that most of this book has focused on' (Baras 2022: 163; cf. 75), he argues:

> I do not mean to say that these authors use the term 'calls for explanation' such that it just means [what I gave above]. Suppose we knew for certain that a particular fact had a special explanation, and we knew what that explanation was – it would seem infelicitous to say that that fact calls for explanation. At least typically, people don't use the term 'calls for explanation' to describe facts for which they have the explanation, even when they have reason to believe that those facts have a special explanation. (Baras 2022: 16–17)[3]

I do not agree. Of course, Darwin was not certain that evolution by natural selection holds and is the reason why species fall naturally into groups within groups. But as we saw earlier, his strong confidence in this explanation was no obstacle to his regarding nature's Linnaean hierarchy as a 'truly wonderful' fact. That fact remained powerful evidence for Darwin's theory; its continuing strikingness is bound up with its continuing confirmatory significance.

For that matter, it seems to me that sometimes scientists generally recognize a fact as striking *only* after they have identified a non-preposterous theory that would provide a 'special explanation' of it. For instance, that the early universe's ratio of gravitational potential energy to kinetic energy of expansion was extremely close to 1 was not widely recognized by cosmologists as a fact crying out for special explanation until after such an explanation was seriously proposed: an epoch of 'inflation' shortly after the Big

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3 Although Baras acknowledges that he has 'come across people with different linguistic intuitions about this' (2022: 17), he still says later: 'If calling for explanation primarily means that we have reason to believe that a given fact has a special explanation, then why are there cases in which we have reason to believe that a fact has a special explanation but it seems inappropriate to say that it calls for explanation? Once such case is when I know what the explanation is' (2022: 160; cf. 79).

Bang. Likewise, the nice fit between Africa's western and South America's eastern coastlines was not widely regarded by geologists as crying out for special explanation until after such an explanation – continental drift – was proposed and until after a non-preposterous mechanism for it was identified. Scientists in cases like these may not have been justified in regarding a given fact as striking until after they had found a non-preposterous potential 'special explanation' of it. Perhaps only after scientists had come up with these potentially explanatory hypotheses and similar non-preposterous potential explanations of other, related facts were scientists in a position to justly expect any of these facts to have special explanations.

Even if this is correct, some philosophers surely go too far in the direction that I have just indicated – in the opposite direction from Baras. For instance, Leslie (1989: 10; cf. 121) maintains that the only facts that we justly deem striking are those where we have some inkling of what their special explanations are:

> Our universe's elements do not carry labels announcing whether they are in special need of explanation. A chief (or the only?) reason for thinking that something stands in such need, i.e. for justifiable reluctance to dismiss it as how things just happen to be, is that one in fact glimpses some tidy way in which it might be explained.

This view seems mistaken. As Eldredge remarks, Darwin justly believed that various natural regularities 'cried out' for explanation long before Darwin had any idea at all about how they might be explained. Baras (2022: 81–89) also offers cogent criticisms of Leslie's proposal and other proposals along similar lines.

Why not analyse a fact's 'strikingness' (in the striking principle's sense) in terms of how much epistemic reason (perhaps of a particular, non-testimonial kind) there is to believe that the fact has a special explanation?[4] It seems to me that Baras's strongest argument against this analysis is that the notion of a 'special explanation' is not well-defined; in different cases, different kinds of explanation count as 'special' (Baras 2022: 123–4, 161, 163). Such diversity certainly seems present to me. If two students turn in word-for-word

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4 Baras (2022: 65) rules out this analysis on the grounds that a fact's strikingness is 'supposed to be the reason why we should believe … that [the fact] can be explained in the special way', so strikingness must be a property of a fact separate from the existence a certain sort of epistemic reason to believe that the fact has a special explanation – a property to which we can have epistemic access prior to acquiring epistemic reason to expect the fact to have a special explanation. We are supposed to acquire that epistemic reason by virtue of ascertaining that the fact is striking (Baras 2022: 88–89). But I see no reason why a fan of understanding some of our confirmatory reasoning in terms of strikingness should expect there to be such a separate unified property – any more than each time we know that the cat is on the mat, the fact that the cat is on the mat must possess the same separate unified property by virtue of which we have good reason to believe this fact.

identical papers, then this could be just a coincidence (in that there were no interesting common causes of their papers), but the similarity between their papers cries out for a special explanation: some sort of collaboration between them or a common source from which each of them independently borrowed. But in other cases, such a causal explanation does not count as a special explanation, and instead only some species of non-causal explanation qualifies as special. For instance, Kahneman (2011: 109–12) reports that the US counties with the highest incidences of kidney cancer during some period are mostly (and disproportionately) counties with relatively small populations. This fact might suggest a causal link between kidney cancer and some factor associated with being rural. But the US counties with the lowest incidences of kidney cancer during that period are also mostly (and disproportionately) counties with relatively small populations. This makes for a striking fact, suggestive of a special explanation that in this case would not involve the causes of kidney cancer. In fact, Kahneman says, the explanation lies in what he calls 'the Law of Small Numbers' (that when chances govern various outcomes, small samples have a greater tendency than large samples to depart greatly from the expected value of some quantity).[5]

Furthermore, what would count as a 'special explanation' can shift with the context even while the *explanandum* remains fixed. Baras correctly (in my view) recognizes that some mathematical facts can justly be termed 'striking' and have explanations, so I will use a mathematical fact (that I have discussed in Lange 2017: 298–304) to illustrate how standards of what makes an explanation 'special' can shift with the context even while the *explanandum* remains the same. Insert the numbers 4 and 7 in the first two rows of the following table.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
Total

Then complete the table by inserting the sum of the first two rows in row 3, the sum of rows 2 and 3 in row 4 and so on through row 10 – and then computing the grand total by summing all ten rows. Here is the completed table:

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5 I discuss such 'really statistical explanations' in Lange 2017 and 2022b.

1.	4
2.	7
3.	11
4.	18
5.	29
6.	47
7.	76
8.	123
9.	199
10.	322
Total	836

Notice that the total is the 11 times the entry in the 7th row. Try this with a few more initial pairs of numbers. You will find the same relation between the grand total and the 7th row. A striking result! That this trick worked each time cries out loudly for explanation.

A 'special explanation' is an explanation that would show the trick's record of success in the cases that you tried to be no fluke. Here is such an explanation (from Gardner 1979: 101–4, 167–8):

1.	x
2.	y
3.	$x + y$
4.	$x + 2y$
5.	$2x + 3y$
6.	$3x + 5y$
7.	$5x + 8y$
8.	$8x + 13y$
9.	$13x + 21y$
10.	$21x + 34y$
Total	$55x + 88y$

The total is 11 times the entry in the 7th row. This is a special explanation of the trick's success in the cases that you tried because this proof treats all of those cases (and every other possible choice of x and y) alike, revealing the trick's success in the cases that you tried to be no coincidence.

But as we look at the table with x's and y's, the context shifts. The table has decomposed the result into an x-sequence and a y-sequence. The above derivation treats these two sequences separately. It is striking that for both the x-sequence and the y-sequence, the grand total of that sequence is 11 times that sequence's entry in the 7th row. The trick's success now cries out again for a special explanation, but the standards for an explanation to qualify as 'special' have undergone a shift. A 'special explanation' would now have to be a derivation that reveals the similarity between the x-sequence and the

y-sequence to be no coincidence. What had been a special explanation (the table with the *x*'s and *y*'s) is now no longer special; the kind of explanation for which the result is 'crying out' has shifted.

Nevertheless, the diversity of 'special' explanations and the context-dependence of our standards for an explanation's being 'special' do not (it seems to me) impugn strikingness or the striking principle as a way of structuring our confirmatory reasoning. We can rightly (and perspicuously) present some of our reasoning in terms of strikingness – in terms of how much epistemic reason (perhaps of a particular, non-testimonial kind) there is to believe that a given discovery *E* has a special explanation. That is, we can reconstruct our reasoning as concerned with why we should believe (or have a given degree of confidence) that *E* has (or does not have) a given sort of explanation. We can then rightly bring our conclusion to bear on various hypotheses, depending on whether they would explain *E* in the given way. Different sorts of explanations are our concern in different cases (and what sort of explanation is our concern may often successfully be left tacit), but the usefulness of this way of structuring our confirmatory reasoning is not thereby undercut. Analogously, we can often successfully reconstruct our reasoning in terms of one body of evidence having greater 'diversity' than another and thereby having greater confirmatory impact on a given hypothesis; which dimensions of diversity are relevant may often safely remain implicit. We would miss epistemically significant differences and similarities between various bodies of evidence (and we would lose useful ways of arguing about how they compare in their confirmatory impacts on a given hypothesis) if we did not compare them in terms of their diversity. In the same way, we would miss out if we did not compare (and reason about) various discoveries in terms of their strikingness.

For instance, it could be that to say that *E* is striking is to say, roughly, that *E*'s having a particular (contextually understood) sort of explanation is strongly supported by our past experience with the (similar) explanations of certain other facts. If we justly regard *E* as striking, then we justly take a hypothesis *H* that would explain *E* in that sort of way as gaining some support from our past experience with the (similar) explanations of certain other facts. This sort of confirmation can be put in Bayesian terms.[6] But doing so does not make strikingness dispensable to our understanding of *H*'s confirmation. Although there would then be no separate fundamental striking principle to supplement Bayesian conditionalization, *E*'s strikingness would be the means by which the known explanations of certain other facts bear on various hypotheses that would explain *E* even though those other facts may concern various physical phenomena having nothing to do with

6 For one way to do so, see Lange 2022a: 99, n. 28.

E.[7] For example, the strikingness of the anatomical similarities that Darwin noted among various biological species allows us to express the way that (for instance) the familiar common-origin explanation of the word-for-word similarities among various copies of Moby-Dick justly made more plausible Darwin's hypothesis of a common-origin explanation of the anatomical similarities that he noted – even though the explanations of texts would otherwise have no bearing on the explanations of living things.

4. Conclusion

Baras (2022: 167) concludes that:

> Premising an argument on a claim that a certain fact calls for explanation is a form of bad reasoning. It is so not because there are no facts for which we have reasons to believe that they have some kind of special explanation, but rather because claiming that a fact calls for explanation does not itself point to any such reason, and it does not tell us what kind of explanation to expect. Thus, this way of reasoning is too opaque to assess. In order to determine whether the argument is sound, we must always ask what kind of special explanation we should expect and what reason we have for doing so.

I am not entirely convinced by Baras's arguments, though I found them fascinating and, indeed, I encountered something worth thinking about on nearly every page of this book. I do not think that we must always ask what kind of explanation qualifies as 'special' – what kind of explanation the striking fact under discussion should be expected to have in view of its strikingness. Sometimes the issue is instead what kinds of explanation do not count as special (as in Kahneman's example where, upon ascertaining the striking relation of high kidney cancer incidence to both high and low population levels, we might justly expect this relation to have no causal explanation even before having any idea of any specific sort of non-causal explanation for which this relation is 'crying out'). Sometimes we do not need to dig into our epistemic reasons for expecting a given striking fact to have a given sort of explanation. Rather, when we appeal to the given fact's strik-

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7 Because these other cases may concern physical phenomena that have nothing to do with *E*, it is not obvious to me that to be justified in applying this kind of reasoning to the apparent fine-tuning of the initial conditions or laws of the universe, we would need to have observed many other universes, as Baras (2022: 153–4) sometimes seems to suggest. Nevertheless, I agree with Baras that we cannot simply characterize the initial conditions or laws of our universe as 'calling for explanation' without giving any justification for doing so; offered without any justification, this characterization is insufficient to justify our expecting the universe's apparent fine-tuning to have a certain special sort of explanation. Instead, the requisite justification would require us to draw on relevant background experience of other explanations (but why would that experience have to be confined to observations of other universes?).

ingness, it is sometimes perfectly obvious what background knowledge of other explanations is serving as our epistemic reason. Typically, a scientist's (or mathematician's) peers understand his or her appeal to a given fact's 'crying out for explanation', and part of their doing so is understanding what kind of explanation the given fact is being expected to have (and what background experience of other explanations is motivating that expectation).

Nor do I regard an appeal to a fact's strikingness as especially 'bad' reasoning or as 'too general and ambiguous' (Baras 2022: 163) – as any worse than an appeal to a body of evidence's diversity or an appeal to enumerative induction (to which Baras repeatedly appeals without recording a qualm). Of course (as Baras (2022: 143) notes in raising the spectre of Goodman's 'grue' example), we all know that enumerative induction should not be applied indiscriminately. Sometimes we do indeed need to offer reasons for projecting one regularity exhibited by our evidence rather than another – reasons for expecting one range of cases rather than another to be alike in one sort of respect rather than another. We must be similarly discriminating in regarding certain respects of variety but not others (e.g. variety in the day of the week on which vaccine-trial subjects were born) as contributing diversity to our evidence, and sometimes we do need to specify our reasons for making the discriminations we make. But these (relatively rare) occasions do not render ordinary appeals to enumerative induction or to diversity of evidence (without any further specification of the background knowledge on which we are tacitly relying) empty, misleading, especially prone to misuse or deserving of any particular philosophical suspicion. The same goes (I think) for appeals to a fact's crying out for explanation.

Rather than holding 'that we are better off forgetting the idea that there are facts that call for explanation' (Baras 2022: 172), I am for characterizing certain facts as 'crying out' loudly for certain sorts of explanations. I take this sort of characterization to be a familiar and useful part of scientific, mathematical and even philosophical practice.

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Justification, Evidence and Truth

BOB BEDDOR

Being Rational and Being Right
BY JUAN COMESAÑA
Oxford University Press, 2020. 240 pp

1. Introduction

Rational thinkers respect their evidence. This much is a platitude. But when we try to put some flesh on the bones of this platitude, we quickly find ourselves embroiled in difficult questions. What does an agent's evidence consist in? And how does respecting the evidence relate to justified belief?

Bayesian epistemology offers an elegant framework for modelling rational responses to the evidence. But it leaves these foundational questions unanswered: textbook statements of Bayesianism are usually silent on how to conceive of evidence, or how the rational requirements they espouse link up with justification.

Comesaña's important book, *Being Rational and Being Right*, seeks to answer these questions. While the book covers a lot of ground, its central contribution is an articulation and defence of a particular theory of evidence:

> **Experientialism:** An agent's evidence consists in those beliefs which are *ultima facie* justified by experience.

According to Comesaña, experientialism plays nicely with our best decision theory, and it can serve as the backbone for a comprehensive theory of epistemic justification. Rival views of evidence lack these virtues, or so Comesaña argues.

Being Rational and Being Right is filled with fascinating arguments, and it offers an exciting vision of how epistemic and practical rationality fit together. Here, I want to focus on three themes in Comesaña's extraordinarily rich book: (i) the criticism of factualist accounts of evidence and the arguments for experientialism, (ii) Comesaña's proposed rule for updating credence in light of new evidence and (iii) the overall theory of justified belief that emerges in the last chapter.