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# Are Miracles Chimerical?

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## I. INTRODUCTION

Hume's notorious essay 'Of Miracles' (1902 [1748]; 1986) is as cheeky as it is problematic. A centrepiece in his ongoing attack on theism, it has outraged many, and perplexed still more; it has thus been both denounced with missionary zeal, and scrutinized in countless scholarly works. In this paper, I will scrutinize it further. I will challenge two readings of it by noted Hume scholars, which I regard as uncharitable, offering in their place my own reading. I will also clear it of a prevalent charge. Along the way, however, and especially in the final section, I will level some further charges against it.

In more detail: Hume argues that belief in a miracle report is never justified. According to Flew's (1985) reading of the argument, Hume gives an a priori argument that defines miracles out of existence. I find this reading hardly sympathetic: it portrays Hume as employing an overly strong premise, and as settling for a strangely timid conclusion. Furthermore, on Flew's reading, Hume's lengthy ruminations about testimony would be quite otiose. I have a similar complaint about another reading of the argument, given by Coleman (1989). As my own reading of the argument makes clear, it does have a substantial a priori component, but it is not as

I presented a much shorter, early ancestor of this paper—featuring its exegesis of Hume's argument and its discussion of his balancing principle—at the Australasian Association of Philosophy conference, and at the Australian National University's philosophy department, both in 1994. I am grateful for comments from both audiences. Many thanks to Donald Baxter, Dorothy Coleman, Fiona Cowie, Jennifer Saul, Dorothy Stark, Eric Steinhauer, and Margaret Wilson, for comments on another early version of this paper; and to Alex Byrne, Fiona Cowie, Ned Hall, David Hilbert, Ralph Miles, James Woodward, and Lyle Zynda for comments on its various resurrections.



trite as Flew would have it. Moreover, the argument has an important and clearly demarcated a posteriori component that turns on certain empirical facts about testimony, which finds no place in Coleman's reading. The argument does, however, have some significant shortcomings, as I hope my analysis will reveal.

The most prevalent charge against Hume's argument is that a key principle of his linking belief and probability is flawed. He has us balance the probability of a miracle's occurrence against the probability of its being falsely attested to, and he argues that the latter must always be the greater; thus, Hume argues, reason requires us to disbelieve any miracle report. The 'flaw' in this reasoning is supposedly that it proves too much—if it were any good, it would supposedly counsel us to reject the claims made by historians, to reject newspaper reports of lottery results, and so on; and this is clearly absurd. This charge is misguided: far from providing counterexamples to *Hume's balancing principle*, as I will call it, these cases actually confirm it.

Having cleared Hume of this charge, I will relocate the Achilles heel of the argument: the problem is not with the balancing principle, but rather with the probabilities being balanced. Hume argues that miracles are, in a certain sense, maximally 'improbable'. Our search for just what that sense is leads us to his notion of probability as *strength-of-analogy*: miracles are incredible according to Hume because they bear no analogy to anything in our past experience. Now, strength-of-analogy does not seem to be a genuine sense of 'probability' at all. However, it may feed in as one input in the formation of a rational agent's overall state of belief, which we can model with a probability function. To the extent that it does, I believe that Hume's argument is exposed to further charges, with which I will conclude.

## II. HUME'S ARGUMENT—AND OTHER ARGUMENTS

### II.1. Flew's reading

There are many readings of Hume's argument to be found, but I want especially to distance myself from two of them. I begin with:

#### *The 'miracles are contradictory' reading*

A miracle is a violation of a law of nature. But a law of nature is, among other things, a regularity to which there are no exceptions. It is thus impossible for any event to occur that falsifies this regularity—any such putative 'exception' is really proof that the supposed law did not in fact

obtain. That is, it is contradictory to say that a miracle has actually occurred. Thus, belief in testimony to the occurrence of a miracle is never justified.

I take this to be Flew's (1985) reading of the miracles argument. He writes that Hume's argument:

> *takes off from the observation that there cannot but be a conflict, even a contradiction, within any suitably comprehensive case for saying that a miracle has actually occurred.* Such a case has to show: first, that the supposed laws, of which the actual occurrence of the putatively miraculous events would constitute an overriding, do in fact obtain; and, second, that the overridings have in fact occurred.
>
> All evidence for the first proposition, however, is at the same time evidence against the second; and the other way about. For *to say that a law of nature obtains just is to say that it is* (not logically or apriori (*sic.*), but naturally and practically) *impossible for any events to occur such that these events would by their occurring falsify the* universal and nomological (law-stating) *proposition which expresses that law of nature. Thus, to show that a law of nature obtains just is to show that the occurrence of exceptions is naturally impossible; while to show that even one 'exception' has occurred would be to show that that law, at least in that formulation, did not obtain.* (8, my emphases)

A few pages earlier, Flew states that 'Hume's prime concern here is with knowledge, and hence with evidence rather than fact. He is not asking whether any miracles have occurred or do occur ...' (4). 'Knowledge' is surely the wrong word; Hume's argument is all about rationally weighing probabilities in the face of evidence that pulls in opposing directions. But at least Flew realizes that the conclusion of the argument concerns the *epistemic attitude* that one should take to miracles, rather than their ontological status: while Hume may be prepared to concede that a miracle is in some sense possible, *rational belief* in a miracle is *not* possible (especially on the basis of testimony). Miracles are, according to Hume, what Sorensen (1988) would call 'blindspots' for rational believers.

However, Flew's reading quoted here then becomes quite perplexing. It portrays Hume as regarding a miracle's occurrence as an *analytic* falsehood—on a par with the death of an immortal being—as if he had simply defined miracles away. One is left wondering why Hume would settle for a merely epistemological conclusion, why he thinks he has merely ruled out rational belief in miracles, when really he has (on this reading) ruled out the miracles themselves. Miracles are contradictory—belief need not enter the picture. Flew, then, implicitly attributes a glaring oversight to Hume, and charity alone should make us hesitate to join him, unless there is good evidence on his side. I find no such evidence.

But one might press the point that Hume is still guilty of an oversight—less glaring perhaps, but an oversight nonetheless. 'Granted', the point-presser allows, 'this "incoherence" argument against miracles is not Hume's. But it is a good argument that was available to him, and it could have saved him a lot of work.' Even this I find untenable: contrary to Flew's version of the argument, the notion of a violation of the laws of nature is arguably consistent. For example, it might be thought that the laws of nature govern or describe the workings of *nature*, understood as a closed system, when left to its own devices; but they can be violated by the intervention from the outside of some *super*natural agent.[1] I suspect that Hume was aware of this position himself, and he would thus have been chary of any argument that simply defined miracles away, if only to avoid begging the question against an opponent who held this position.



The 'miracles are contradictory' reading of the argument presupposes a certain view of what laws are: exceptionless regularities, with possibly some further features. While this view has strong support (Mill, Ramsey and Lewis providing much of it), there are analyses of lawhood that deny it (for example, certain subjectivist analyses).[2] And Hume does not presuppose such a view in the miracles argument. He *does* presuppose, of course, that there are such things as laws of nature. Note that someone like van Fraassen (1989), who finds the very notion of the 'laws of nature' incoherent, would have another snappy argument against violations thereof—but again, it wouldn't be Hume's.

Furthermore, Hume's argument famously has more than a little to do with *testimony*, and Flew obviously recognizes this elsewhere in his article. After all, the entire Part II of Hume's essay—by far the longer part—is a sustained harangue on the wretched historical track record of actual testimony to miracles. But on Flew's reading above, it is mystifying what role could be left for any discussion of testimony to play; and note that the word 'testimony' does not appear in this reading, nor any mention of that track record. Given the death blow that miracles have putatively been dealt already, Hume's subsequent pontifications on testimony ought to seem utterly puzzling. Compare the following argument:

Part I A bachelor is an unmarried man. Thus, there cannot but be a conflict, even a contradiction, within any suitably comprehensive case for saying that a particular married man is actually a bachelor.

Part II There have been numerous instances of people claiming to be married bachelors; but they all turned out to be unreliable. (Insert here various stories of false claims to married bachelorhood through the ages.)

[1] Mackie (1982: 19–23), among others, makes a similar point.

[2] Aficionados of the lawhood literature will recognize the entailment from a law to the corresponding regularity as van Fraassen's (1989) 'inference' condition. And van Fraassen argues that various accounts of lawhood fail to meet this condition.

*Conclusion*
Testimony to a particular married man's being a bachelor should not be believed.
Your reaction should be: utter puzzlement.

## II.2. Coleman's reading

Similar puzzlement is generated by another reading of the argument.

### *The 'we were wrong about the laws' reading*

To the extent that we seem to have evidence that a supposedly 'miraculous' event has occurred, we really have evidence that the putative 'law' that this event contravened was not in fact a law at all—in which case, the event wasn't really a miracle at all. That is, on the basis of this evidence, we should conclude that we were mistaken about what the true laws are, and not that a miracle has occurred. Thus, belief in testimony to the occurrence of a miracle is never justified.
Coleman (1989) puts the argument this way:

> one must ask if it is always more likely, i.e., conformable to experience, that those claiming the event to be a miracle are mistaken rather than that the event is a genuine violation of a law of nature. Counter-instances of what are taken to be natural laws are not by themselves evidence establishing that no natural law could possibly explain them: at most they provide grounds for revising our formulations of natural laws or seeking an improved understanding of the nature of the phenomena in question ... On the other hand, *past experience shows that what are at one time considered violations of natural laws are frequently found at some later time not to be so. Proportioning belief to evidence, therefore, it is more reasonable to believe that the claim that an event is a miracle is mistaken than it is that the event is a violation of natural law.* (338–9, my emphasis)

Again, one is left wondering why Hume bothered to write the second part of the essay—why all those pages on testimony's checkered history? After all, on this reading, wariness of testimony to a certain anomalous event's occurrence is not an issue. On the contrary, we are enjoined to believe that *the event attested to really happened*—we should just be cautious not to *regard* it as a miracle, cautious not to believe claims that this particular event is in fact miraculous.

Distinguish:

1. *disbelieving* testimony to an event's occurrence, when that event really would be miraculous;
2. *believing* the testimony to the event's occurrence, but interpreting that occurrence as non-miraculous.



I must stress that I find no ambiguity in Hume on this point: he is arguing for the rational requirement of 1, not of 2. And convincing us of this is the purpose of his lengthy treatment of testimony in the second part of the essay. Hume is *not* enjoining us, for example, to believe Tacitus's reports of Vespasian curing 'a blind man in ALEXANDRIA, by means of his spittle, and a lame man by the mere touch of his foot' (122),[3] as long as we revise our formulations of the relevant natural laws. Quite the contrary.

So I do not find the arguments above in section X of the *Enquiry*. I will offer in their place the argument that I do find, spelling out its premises in detail. Doing so will also give me something definite at which to aim my own criticisms later on: fixing my target will, I hope, make it easier to hit.

## II.3. My reading

One of the problems in coming up with a reading of Hume's argument is that there are tensions within the text itself. Hume says at one point 'the proof against a miracle, from the very nature of the fact, is *as entire as any argument from experience can possibly be imagined*' (76, my emphasis), which supports a 'hard-line' reading: no testimony could ever justify belief in a miracle, even in principle. However, he says later:

> I beg the limitations here made may be remarked, when I say, that a miracle can never be proved, so as to be the foundation of a system of religion. For I own, that otherwise, there may possibly be miracles, or violations of the usual course of nature, of such a kind as to admit of proof from human testimony. (127)

This suggests a 'softer-line' reading: testimony could in principle justify belief in a miracle, as long as it is not a 'religious' miracle, and as long as the testimony is stupendously good. Mackie (1982) opts for such a softer-line reading. Note that we saw neither reading above: Flew opts for a *diamond-hard-line* reading that banishes the very notion of a miracle, and for Coleman the rejection of the testimony is not even an issue.

I favour the hard-line version, mainly because I find Hume's concession to 'non-religious' miracles somewhat baffling: the argument seems to go through just as smoothly whatever the nature of the miracle in question may be.[4] In any case, I am happy to allow that there may be more than one coherent reading of the miracles argument to be extracted from Hume's

[3] All page references are to the classic Selby-Bigge (1902) edition of Hume's *Enquiries*.
[4] While I do not want to detain myself here on this point, I offer further defence of my reading in footnotes 5 and 9 for those who are interested. Note that it is only at premise 9(d) below that talk of religion comes into the argument—which is to say, *after* the first main conclusion.

text. I simply want to insist that the reading I offer below is one of them, and that the readings above are not.

### *Hume's argument: my reading*

1. A miracle is a violation of the laws of nature.
2. A law of nature is, *inter alia*, a regularity to which no exception has previously been experienced.

Thus,

3. There is as compelling a 'proof'[5] from experience as can possibly be imagined against a miracle.
4. In particular, the proof from experience in favour of testimony of any kind cannot be more compelling.
5. There is no other form of proof in favour of testimony.

Therefore,

6. The falsehood of the testimony to a miraculous event is always at least as probable as the event attested to (however good the testimony seems to be).

However,

7. *(Hume's balancing principle)* The testimony should be believed if, and only if, the falsehood of the testimony is less probable than the event attested to.

Therefore, (by 7 and 8):

8. (Conclusion 1) Testimony to a miraculous event should never be believed—belief in a miracle report could never be justified.

This defeats the best case for believing in miracles that could be made.

9. As a matter of fact, we are never faced with the best case, for testimony in favour of miracles (particularly those associated with religions) is never the best possible. After all,

[5] I put 'proof' in scare quotes since the word is to be understood in Hume's sense, one which some would find idiosyncratic: 'By proofs meaning such arguments from experience as leave no room for doubt or opposition' (37, fn 24). Thus, it is hard to see how Hume can really mean it when he makes the concession that I adverted to earlier: 'there may possibly be miracles, or violations of the usual course of nature, of such a kind as to admit of proof from human testimony'. How can there be arguments from experience that leave *no* room for doubt or opposition for contrary propositions—both for a given law of nature, and its violation? I thus take Hume's concession to be something of a slip, and I regard this as further support for my hard-line reading of the argument.



(a) There has never been an instance of a miracle report made under such circumstances as to guarantee its trustworthiness.

(b) People have a natural inclination to believe in miracles on the basis of meagre evidence.

(c) The more civilized a nation is, the less frequent are its accounts of miracles.

(d) Every religion abounds with alleged miracles, but to the extent that these religions are contrary to each other, reports of miracles in one religion destroy the credibility of those in another.

Therefore, (by 3 and 9)

10. (Conclusion 2) Any actual miracle report (particularly one associated with a religion) should be outright disbelieved.

Figuring out just what Hume means by 'improbable' here will require some more excavation in his writings, and I will undertake this task in §IV. But before moving on, let us look at the textual support for this reading.

Hume writes:

> A miracle is a violation of the laws of nature; and as a firm and unalterable experience has established these laws, the proof against a miracle, from the very nature of the fact, is as entire as any argument from experience can possibly be imagined. (114).

From this I glean the first three premises. The inference to premise 4 is obvious. Premise 5 summarizes this passage:

> It being a general maxim, that no objects have any discoverable connexion together, and that all the inferences, which we can draw from one to another, are founded merely on our experience of their constant and regular conjunction; it is evident, that we ought not to make an exception to this maxim in favour of human testimony, whose connexion with any event seems, in itself, as little necessary as any other. (111)

Premise 6 makes explicit the bridge Hume implicitly assumes between evidence and probability, applied to the special case of a miracle report—we will return to it at length in §IV. I call premise 7 *Hume's balancing principle*, a much maligned centrepiece of the argument. He gives an example of the principle, then articulates it, as follows:

> When any one tells me, that he saw a dead man restored to life, I immediately consider with myself, whether it be more probable, that this person should either deceive or be deceived, or that the fact, which he relates, should really have happened. I weigh the one miracle against the other; and according to the superiority, which I discover, I pronounce my decision, and always reject the greater miracle. If

the falsehood of his testimony would be more miraculous, than the event which he relates; then, and not till then, can he pretend to command my belief or opinion. (116)

Hume's talk of rejecting 'the greater miracle' is a little infelicitous, suggesting as it does that contravening a law admits of degree. His point is better expressed as involving a comparison of two probabilities; and various remarks in the neighbourhood of this quote convince me that this is in the right spirit. Furthermore, this is how his critics standardly understand him.

I have distinguished conclusions 8 and 10 to facilitate my later discussion, but they should be familiar to any reader of the argument. Premise 9 is a summary of part II of Hume's essay.

## II.4. Commentary

I hope that it is perspicuous how the parts of the argument cohere, and that Hume does not simply define miracles away—this is only underscored by his attention to *experience* and *observation*. But more than that: he does not even define away the *observability* of miracles. In footnote 43, he surmises: 'The raising of a house or ship into the air is a visible miracle.' Miracles, and even observations thereof, are coherent alright, as these examples make clear.

What, if anything, *does* Hume define away? The following, I submit:

(i). a miracle that has been previously observed (that is, up to but not including the time of the miracle report);
(ii). an (empirical) proof more compelling than the proof against a miracle;

Hence,

(iii). a proof in favour of an item of testimony more compelling than the proof against a miracle;

and, in particular,

(iv). a proof in favour of a miracle report more compelling than that against the miracle itself.

Let's take these points in turn:

*Regarding (i):* I see no room for flexibility here. How else could Hume say: 'the proof against a miracle is as entire as can possibly be imagined'? If there had been even a single observation of a miracle previously, a stronger proof against this miracle could easily be imagined—namely, if that observation had not been made. I add the word 'previously' here, for if I didn't I would be saddling Hume with another argument that simply defines observations



of miracles out of existence. Note that many a theist will baulk at (i). The transubstantiation, for example, is thought by many to be a miracle that is observed at every mass.

*Regarding (ii):* this involves Hume's inference from 1 and 2 to 3. Every step is problematic. Arguably, a miracle need not violate the laws of nature; it might suffice for it to be extremely improbable, but nonetheless consistent with the laws. As Hambourger (1980) has noted, the parting of the Red Sea can be regarded as the law-abiding conjunction of many small events: this droplet of water moving one way, that droplet of water moving another, and so on. And some might allow for there to be *ceteris paribus* laws—ones that might admit of exceptions when *ceteris* is not *paribus*.

But we should especially question the validity of the inference. Grant Hume 1 and 2 for the sake of the argument. It is consistent with a law being a regularity to which no exception has previously been experienced, that it is *also* a regularity of which no *instance* has previously been experienced. Tooley (1987) countenances the possibility of uninstantiated laws; we might, for example, think of laws of radioactivity that cover non-existent atoms (although they could exist). But even if laws must be instantiated (as Armstrong 1983 would require), that does not mean that they must be instantiated *much*. A law might govern a particle that is instantiated exactly once. Hume moves all too swiftly from the *absence* of counterevidence against a law to the *presence* of supporting evidence for the law, and thus the *presence* of counterevidence against a miracle that violates it—indeed, a maximal amount of it. But there may be laws, and corresponding miracles, for which there is very little evidence on either side. More generally, thanks to the underdetermination of theories by evidence, many incompatible theories have admitted of no observed exceptions, but this hardly means that they are all maximally confirmed, and that their violations are maximally disconfirmed. 'All emeralds are green' and 'all emeralds are grue' are both regularities to which no exception has previously been experienced. But nobody thinks that the proof from experience against a violation of the 'grue' regularity is as compelling as can possibly be imagined.

*Regarding (iii) and (iv):* their support from (ii) thus undercut, they are on rather shaky ground. Note also that it is consistent with all that Hume has said in his argument that miracles enjoy some *further* source of support that testimony does not—as it might be, some immediate revelation to us. In that case, even granting (as I have not) that the empirical proof against a miracle report is as strong as can be, there may still be a *non*-empirical proof in favour of a miracle report that makes it compelling. But of course this notion would fly in the face of Hume's empiricism, and for now, I am happy to let it pass.

Continuing with Hume's argument: premise 5 might be questioned by someone who thinks that as well as the empirical basis for judging testimony, there are further a priori considerations that support at least somewhat the veracity of testimony—perhaps interpretivist considerations, especially those involving some principle of charity (see, e.g., Lewis 1974). I am prepared simply to grant this premise. The status of premise 6 will be the subject of §IV. I will defend premise 7 (at least in the 'only if' direction, which is all that Hume needs) in the next section.

There has been much dispute about whether Hume's argument is meant to be a priori or a posteriori.[6] In my opinion, it is surely *both*. It is a priori up to and including the first conclusion; a posteriori from then on. Incidentally, this division of labour is neatly drawn by the two parts of the essay. But what are the distinctive contributions of these two parts?

The first part establishes that even the best testimony imaginable cannot outweigh the case against a miracle, from the very nature of a miracle. At best, the case for the testimony is also 'as entire as can possibly be imagined'. Hume does seem to admit this as at least a conceptual possibility: 'In the foregoing reasoning we have supposed, that the testimony, upon which a miracle is founded, may possibly amount to an entire proof' (116)—but even then it is not sufficient to justify belief in the miracle itself.

To see why not, imagine that we are faced with powerful testimony, of a kind that has had a distinguished and totally unblemished track record, to a miracle M. (If this is not the best case, what is?) M belongs to two different reference classes, which incline us in opposing directions. Qua event attested to by this (up till now) uniformly reliable testimony, M is highly probable; qua event that violates another regularity of which we have had (up till now) uniform experience, M is highly improbable. In Hume's words, 'here is a contest of two opposite experiences; of which the one destroys the other, as far as its force goes, and the superior can only operate on the mind by the force, which remains' (113). If, then, we suppose these opposite forces to be exactly equal (and we may as well stipulate it to be so in our imaginary case) then they exactly annihilate each other. We are left with a stalemate. Nevertheless, Hume's first conclusion still follows: the testimony to M should not be believed—belief in M is not justified. Rather, *agnosticism* is surely the appropriate state of mind (although Hume does not spell this out in so many words).[7]

[6] See, for example, Levine's discussion (1989: 13).

[7] Mackie (1982: 17) has made the gist of this last point before me. As he says, when the improbability of the miracle's occurrence equals the improbability of the testimony's being false, 'we must simply suspend our judgement until some fresh consideration tips the balance either way; but in the meantime we cannot rationally accept the report'.



But, as Hume remarks (116), 'we have been a great deal too liberal in our concession' to miracles up to this point. As a matter of empirical fact, the case against actual miracle reports is stronger than it is in our imaginary case—and showing this is the business of the second part of the essay. So now Hume goes for the jugular, driving home just how *un*distinguished the track record of testimony to miracles actually is. And a veritable hall of shame it is. It is clear that his target here is testimony to *religious* miracles; but the considerations that I have labelled (a) to (c) seem to be equally telling against miracle reports in general, irrespective of their affiliation.

In fact, there are two respects in which Hume could have strengthened his conclusions at no extra cost. Firstly, his first and second conclusions could cover even the 'testimony' of one's own senses to a miracle. For such testimony cannot in principle outweigh the evidence in favour of the relevant law of nature; and as a matter of empirical fact, such testimony has also had a tarnished past (witness optical illusions, magicians' tricks, our theory-laden perceptions leading us astray ...). When it comes to miracles, seeing is not believing, or at least by Hume's lights it shouldn't be. (Note, however, that the evidence in favour of a law is merely provided by another body of sensory testimony, and the testimony of other informants. That's another respect in which the 'proof' in favour of a given law *could* be stronger, besides those adduced in my discussion 'Regarding (ii)' above: your senses, and your informants, could be more trustworthy!)

Secondly, thanks to the a posteriori part of the argument, we could go back and allow a more liberal definition of 'miracle' than Hume's, which will in turn produce a stronger second conclusion. For example, let's define a miracle to be a violation of a law of nature *or* an exceptionally improbable event. This new definition would embrace various events that one might want to call miraculous, even though strictly speaking no law of nature is violated. Again, the parting of the Red Sea is consistent with the laws that we believe obtain, despite having staggeringly low probability. This loosening up of the definition will still sustain Hume's final conclusion, now read with the more liberal sense of 'miracle' in mind. For presumably no actual testimony could have such exceptionally small probability of falsehood, given the empirical facts about past testimony that Hume cites. So we simply run the argument again: balance the

However, he goes on to make more of a concession to miracles than I think Hume would allow: he imagines a case in which 'the occurrence of the miracle is intrinsically less unlikely than the testimony's being false: in this we are rationally bound to accept the miracle report'. Hume, on my hard-line reading, would deny that such a case could arise, even in principle. This is the upshot of premise 6.

probabilities, and incline our belief (and disbelief) accordingly, just as Hume says.

Be that as it may, let me sum up Hume's actual argument. The first, a priori part of Hume's essay, shows that one is never justified to believe a miracle report, even in the best case—for at best only agnosticism could be justified. The second, a posteriori part, shows that the actual case for (religious) miracle reports is far from the best, and thus disbelief in them is an obligation of rationality.

## III. THE CHARGE: 'HUME'S BALANCING PRINCIPLE IS FLAWED'

Recall Hume's balancing principle, which was premise 7 of the argument:

*The testimony should be believed if, and only if, the falsehood of the testimony is less probable than the event attested to.*

Stated this way, the principle is surely too strong—the 'if' direction is implausible. Suppose that the falsehood of the testimony is *very slightly* less probable than the event attested to; that is, that the miracle's occurrence is *very slightly* more probable than not. It is surely hasty to *believe* the testimony. (You should not *believe* that you will win a 100-ticket lottery if you hold fifty-one of the tickets. You should have degree of belief greater than half—but that is something else.) But in fact the 'if' direction plays no role in Hume's argument; indeed to the extent that it is plausible, it only *improves* the case for miracles, since it allows one to believe a miracle report on the basis of a very slight balance of evidence in its favour. All the action really concerns the 'only if' direction:

*The testimony should be believed only if the falsehood of the testimony is less probable than the event attested to.*

This has as an immediate consequence:

*If the probability that the testimony is false exceeds the probability of the event attested to, the testimony should not be believed.*

Any counterexample to this will therefore be a counterexample to Hume's balancing principle. It is to putative counterexamples to this that I will now turn.[8]

[8] See my (1995) for a fuller treatment; the following four paragraphs are largely lifted from that paper.



And there is quite a tradition of them. We may trace them back to contemporaries or near-contemporaries of Hume's, starting with Butler (1736; reprinted 1961). His discussion does not address Hume's argument specifically—in fact it predates the argument—but it has proved influential on subsequent critics. Responding directly to Hume, they include Price (1811), and fast-forwarding to contemporaries of ours, they include Hambourger (1980), Burns (1981), Brown (1984), and Langtry (1989). Since the objections are variations of a theme found in Butler, I will call them *Butler-style objections.* We see, then, that there is no denying their prevalence; in fact, it is fair to say that they collectively form the single most common sort of objection to Hume's argument.

The Butler-style objection that I want to consider first is none other than Butler's. He argues that miracles are no more improbable than specific historical events. Setting aside the truth or falsehood of that claim, let us just grant him that certain historical events are, a priori, extraordinarily improbable. (What probability would *you* have given, before the fact, to that exact conjunction of battles, retreats, victories, and defeats, that we call the Napoleonic wars—not to mention their exact dates?) Now, we usually accept testimony to such events—in fact Hume himself discusses in the *Treatise* (1739–40; 1975: 46) why we should—even though we know that testimony of this sort has a non-negligible probability of being false. We may quickly turn this into an argument against Hume's balancing principle: it seems that according to that principle we are never justified in believing historians. *Reductio ad absurdum!*

Hambourger ushers in other examples of this ilk in his attack specifically on Hume's balancing principle. His main one is a focused version of an example given by Price. He imagines a lottery in which there are one million entrants, and that the *New York Times* reports that the winner of the lottery is Smith. He supposes that *The Times* misreports the winner one in ten thousand times. Hambourger says 'it is even more unlikely that Smith should win than that the *Times* should make a mistake, and, therefore, on balance, it is more probable that Smith lost the lottery, and the *Times* misreported the winner than that Smith won the lottery' (p. 592). Thus, it is an unwelcome consequence of Hume's balancing principle that we should not believe the testimony of *The Times*—or so Hambourger argues. Thus, the principle proves too much and should be rejected, according to Hambourger.

I do not find these criticisms to be damaging to Hume's balancing principle. The 'unwelcome consequences' of the principle, while undoubtedly unwelcome, are in fact not consequences of the principle at all.

Of course it is sometimes rational for you to believe a historian, or the *New York Times* lottery report. But on those occasions, *pace* Butler and

Hambourger, you must regard the probability of the truth of what is said to exceed the probability of its falsehood. On the other hand, if you really think (and Hambourger claims you do, in the example) that 'it is more probable that Smith lost the lottery, and *The Times* misreported the winner, than that Smith won the lottery', then surely *you should not believe that Smith won the lottery*. Just try saying out loud: 'I believe that Smith won; but I think it is more likely that he lost'. Or try saying it this way: 'I believe the report; but I think it is more likely to be mistaken than correct'. Far from being reasonable things to say, they are tantamount to reports of contradictory beliefs.

The point is that you *don't* think that it is more probable that *The Times* misreported the winner than that Smith won the lottery; you *don't* think that it is more likely that the report is mistaken than that it is correct. In my (1995) I work through the lottery case with detailed calculations. But their upshot can be seen very quickly. Suppose that *The Times* reports that Smith won, and assume (as Hambourger does) that there is no reason to think that this report is special—that is, as usual, there is a probability of $10^{-4}$ that this testimony is false. Then there is a probability of $1-10^{-4}$ that the event really occurred as attested. Thus, the probability that the testimony is false is far *smaller* than the probability of the event attested to. But remember that a Butler-style counterexample has to be a case in which the probability that the testimony is false *exceeds* the probability of the event attested to, and yet the testimony should be believed. Clearly, the lottery example is no such case: the inequality in the probabilities goes in the way congenial to Hume. To be sure, the probability that you *used to* give to Smith winning ($10^{-6}$) is smaller than the probability that you gave then and give now to *The Times* report being mistaken ($10^{-4}$). But this innocuous fact cannot be parlayed into a counterexample to Hume's balancing principle concerning the probability you give *now* to Smith's winning, post report ($1-10^{-4}$), without the wildly implausible premise that you cannot rationally update your probabilities. That would *really* prove too much!

I submit that all the Butler-style cases go the same way. The calculations are not quite as straightforward, but the relevant points carry through.

Advocates of the Butler-style objection would have our beliefs, and presumably our actions, ill reflect our probabilities—after all, they think that it is sometimes reasonable for one to believe a particular proposition, despite assigning greater probability to some contrary proposition. I find it ironic that it should be Butler, of all people, who proclaimed that 'probability is the very guide of life'.



## IV. ANALOGICAL PROBABILITY

### IV.1. Miracles and absence of analogy

So let us be quite clear about this: there is nothing wrong with the 'only if' direction of Hume's balancing principle, which is all his argument needs. If there is anything wrong with that argument, it must be in his claims about the quantities being balanced. Can Hume really show that the probability of a particular miracle's occurrence must always be less than the probability that the testimony to it is mistaken?

It seems he has his work cut out for him. For I don't see how Hume can give a general argument here that *any* (rational) agent is constrained to assign subjective probabilities that balance the way he says they should: towards the falsehood of a miracle report, as opposed to the miracle actually occurring. He will certainly find no support from modern Bayesianism, which requires only that one's degrees of belief obey the probability calculus, and that they update by conditionalizing on one's evidence. The probability calculus is silent on such inequalities regarding contingent matters, and conditionalization need not drive the agent's degrees of belief the way that Hume wants. For example, the agent might give a high prior probability to God existing, and to God intervening in the world in miraculous ways; and a generously low probability to humans deceiving each other, or being deceived. And this agent could always interpret the events of the passing show in such a way that these prior beliefs are only confirmed by experience—seeing God's hand in everyday happenings, and so on. To be sure, Hume would find such an agent irrational for other reasons, such as those he gives in the *Dialogues Concerning Natural Religion* (2006 [1779]), but the miracles argument is supposed to be self-contained, independent of those other considerations.

So why does Hume think that miracles should be assigned such a low probability? Consider firstly his remark that 'the evidence, resulting from the testimony, admits of a diminution, greater or less, in proportion as the fact is more or less unusual' (113). Miracles, then, must be the most *unusual* of events, for they diminish the evidence resulting from testimony to the greatest degree. 'Unusual' certainly seems to imply 'infrequent'—but perhaps it implies something else as well. It had better do so, since Hume recognizes a distinction between 'extraordinary' events and 'miraculous' events, even though the former may happen no more frequently than the latter (indeed, even many events that we would call 'ordinary' never

happen). The distinction must therefore be based on something other than a comparison of frequencies. In a later passage, Hume clarifies how it is that miracles are unusual in a way that merely extraordinary events are not—and thus why one could rationally believe testimony to the extraordinary, but never to the miraculous. He imagines firstly testimony to an extraordinary event:

> suppose, all authors, in all languages, agree, that, from the first of January 1600, there was a total darkness over the whole earth for eight days: Suppose that the tradition of this extraordinary event is still strong and lively among the people: That all travellers, who return from foreign countries, bring us accounts of the same tradition, without the least variation or contradiction: It is evident, that our present philosophers, instead of doubting the fact, ought to receive it as certain, and ought to search for the causes whence it might be derived. (127–8)[9]

[9] I should forestall a particular objection to my reading this as the description of an extraordinary event. You might point to the text that immediately precedes this passage: 'I beg the limitations here made may be remarked, when I say, that a miracle can never be proved, so as to be the foundation of a system of religion. For I own, that otherwise, there may possibly be miracles, or violations of the usual course of nature, of such a kind as to admit of proof from human testimony.' What follows are the two examples that I discuss in the main text. You might say that the eight-day darkness is thus seen by Hume as an example of a miracle that one could rationally believe. I reply that this passage is a little mystifying, quite apart from any stake I might have in explaining it away. Hume has just primed us to expect an example of a *non-religious miracle* that could be believed if the testimony in its favour were spectacularly good, followed by an example of a *religious miracle* that could not be believed, however good the testimony seemed. But in fact, what we find is quite different: The eight-day darkness is a merely 'extraordinary' event—the text is quite explicit on this, as we have seen—a *non-miracle*, apparently; and the resurrection of Queen Elizabeth is a *non-religious miracle*. To be sure, Hume then goes on to imagine the resurrection as being 'ascribed to any new system of religion'. But he has already dismissed the possibility of rationally believing in it while it was being imagined as a *non-religious* miracle: 'the knavery and folly of men are such common phenomena, that I should rather believe the most extraordinary [that word again!] events to arise from their concurrence, than admit of so signal a violation of the laws of nature.'

Furthermore, I don't think that the passage is a special problem for my hard-line interpretation of the argument, because it is *internally* dissonant. My best attempt to explain it away, for what it is worth, is that Hume strangely concedes more to his opponents than he needs to. After all, it is not even implicit in any of the premises in the 'a priori' argument that I presented on his behalf that the miracles he is concerned with must be used to found religions. Whether the argument stands or falls is independent of reading 'miracle' as 'religious miracle'. Rather, this point only enters when he shows that the case for belief in testimony to a miracle is particularly poor when the miracle concerned is religious—but he has already established that the case is poor enough for miracles in general. Indeed, how else could Hume have felt justified in saying at the beginning of the argument that it will 'be an everlasting check to all kinds of superstitious delusion'? After all, not all superstition is religious. In short, the rider 'so as to be the foundation of a system of religion' seems to be a red herring—or a snide dig at Christians. So here again I claim support for my hard-line reading of Hume's argument.



Why should this event be regarded as extraordinary rather than miraculous, and thus the testimony acceptable? The answer comes in the crucial sentence that immediately follows:

> The decay, corruption, and dissolution of nature, is an event *rendered probable by so many analogies*, that any phenomenon, which seems to have a tendency towards that catastrophe, comes within the reach of human testimony, if that testimony be very extensive and uniform. [my italics]

Despite the exceptional nature of the eight-day darkness, we have sufficient experience of *analogous* events to accept testimony to it.

Next comes a description of an event that would be truly miraculous, and which Hume thinks ought not to be believed on the basis of testimony: the resurrection of Queen Elizabeth. Unlike the eight-day darkness, there are no 'analogies' to a resurrection in our experience.[10] Thus, he explicates *unusualness* in terms of *absence of analogy* to our past experience. It is now clear why miracles are unusual, according to Hume. They bear *no resemblance* to events of which we have had experience.

As I read him, Hume's idea is the following. In the past, we have had a number of experiences of events of type A followed immediately by events of type B. A miraculous occurrence would be one in which an event of type A is immediately followed by an event M, *where M bears no analogy whatsoever to B*. It remains to be seen how all of this is related to Hume's belief that miracles are so *improbable* that testimony to them should not be believed. How are the notions of probability and analogy connected? To solve this last stage in the puzzle, we need to leave the *Enquiry*, and look to the *Treatise* instead.

## IV.2. Improbability and absence of analogy

In section XII of Book 1 of the *Treatise* (1739–40/1975) Hume introduces us to his notion of analogical probability:

> there is a third [species of probability] arising from ANALOGY… all kinds of reasoning from causes or effects are founded on two particulars, viz. the constant conjunction of any two objects in all past experience, and the resemblance of a present object to any one of them … If you weaken either the union or resemblance, you weaken that principle of transition, and of consequence that belief, which arises from it. The vivacity of the first impression cannot be fully convey'd to the related idea, either where the conjunction of their objects is not constant, or

[10] That is, whereas the eight-day darkness is a token of a reasonably common event-type, Queen Elizabeth's resurrection is not. I must confess I don't find Hume's remarks about the eight-day darkness completely convincing, partly because his talk of the 'decay, corruption and dissolution of nature' is rather vague.

where the present impression does not perfectly resemble any of those, whose union we are accustom'd to observe... in the probability deriv'd from analogy, 'tis the resemblance only, which is affected. Without some degree of resemblance, as well as union, 'tis impossible there can be any reasoning: but as this resemblance admits of many different degrees, the reasoning becomes proportionably more or less firm and certain. An experiment loses of its force, when transferr'd to instances, which are not exactly resembling; tho' 'tis evident it may still retain as much as may be the foundation of probability, as long as there is any resemblance remaining. (142)

I contend that Hume regarded miracles to be maximally improbable in this third sense of probability: they bear no analogy whatsoever to anything in our past experience.

Actually, 'analogical *probability*' is not a happy name, because strength-of-analogy does not seem to be a probability. (It would be a two-argument probability, for starters. Conditional probability comes to mind, but it can't be that, for strength-of-analogy is the same irrespective of the order of the arguments, but that's typically not true of conditional probability.) Nevertheless, Hume has surely captured something important about the way that we typically *think* about probabilities. Kahneman and Tversky (1973, 1982) have shown that people tend to rely heavily on judgements of similarity when attempting to form judgements about probability. Specifically, we tend to estimate the probability that an individual object belongs to some class by simply estimating how *similar* that object is to a stereotype of that class, the so-called 'representativeness heuristic'. (For example, when asked to estimate the probability that a person described as shy, helpful, tidy... is a librarian, subjects systematically give high answers—apparently explained by the fact that the described person resembles to a high degree the stereotypical librarian.)

This only underlines the point that strength-of-resemblance is not probability—in fact, the use of this very heuristic goes a long way to explaining why people's intuitions about genuine probability are so poor. For instance, unlike genuine probability, strength-of-resemblance is insensitive to so-called 'base rates', the prior probabilities of the classes in question. (The fact that librarianship is a relatively improbable profession for a randomly selected member of the population seems not to diminish at all the subjects' probability judgement that the person described is a librarian, when in fact it should.) But we should not be overly critical of Hume's usage of the word 'probability' here. After all, Hume is in large part concerned with the psychological forces that operate on us when we come to form probabilistic judgements. And on this point I submit that Hume has to a great extent anticipated Kahneman and Tversky's findings.



Be that as it may, I think Hume's position will sound better to the modern philosopher's ear if I say it this way:[11] We represent a rational person's overall state of opinion with a probability function. That function is arrived at by a complex process that involves prior opinions, modified by the influx of evidence. Hume stresses the importance of analogies as determinants of that function. Up to a point, this is familiar enough even to those of us ignorant of Kahneman and Tversky's findings—witness the importance of symmetry considerations in the calculation of probabilities (like the lottery example), and symmetry and analogy go hand-in-hand. But Hume's associationist psychology has a distinctive role for the effect of analogy on opinion. You have witnessed A's constantly followed by B's in the past. You see an A now. How strongly should you expect C, some new event, to follow—that is, how probable should you regard C? According to Hume, it depends on how analogous C is to the B's. Weaken the analogy, and you lower the probability. And when it comes to miracles, the probability gets lowered all the way.

## V. FURTHER CHARGES

We must assess whether the notion of 'analogical probability' can bear the burden that the miracles argument seems to require of it.

Here is a source of suspicion that it cannot. It appears that the miracles argument can be all too easily rewritten so as to give an 'epistemological' solution to the problem of induction. Hume challenged us to justify our belief that the future will resemble the past. But what is medicine for miracles is equally medicine for violations of induction. So we could reply to Hume's challenge: to be sure, the future may *not* resemble the past; but it would never be rational for us to *believe* this to be the case. Suppose, for example, that it appeared to me as if bread failed to nourish me. There is absolutely uniform experience—as compelling a 'proof' from experience as can possibly be imagined—against this really being the case. On the other hand, I have been fooled by appearances in the past, so the 'proof' from experience against my being mistaken is less compelling. Hence, I should not believe that this violation of induction has actually taken place. And so it is with other putative violations of induction. (This recalls my earlier discussion of how Hume could have strengthened his conclusion to cover even the 'testimony' of one's own senses to a miracle.) Put in terms of analogical probabilities: A particular violation of induction

[11] Here I depart from Dorothy Coleman's (2001) reading of analogical probability as being a sense of probability in its own right.

does not resemble anything in my past experience, whereas a deceptive appearance does, so the analogical probability of the former is smaller than the analogical probability of the latter—whence Hume's balancing principle does the rest. There's a quick solution to the problem of induction for you—a little too quick.

In any case, Goodman (1954) taught us that the notion of 'resemblance to the past' is problematic to say the least. He famously wrote: 'Regularities are where you find them, and you can find them anywhere' (82). A corollary to that is that analogies are where you find them, and you can find them anywhere. The Eiffel Tower and my left shoe resemble each other in being terrestrial objects, in being artfacts, in being smaller than a pulsar but bigger than a quark, in being spatio-temporally connected to me, and so on. And while commonsense undoubtedly tells us that certain respects of similarity are more salient than others, this is highly context dependent; yet Hume's argument purports to be quite general, and thus context independent. By focusing on certain respects of similarity at the expense of others, very familiar events can be regarded as disanalogous to past events (for example, focus on the times of the events in question). Conversely, by focusing on certain respects of similarity at the expense of others, putative miracles can be regarded as analogous to past events—they occur in space and time, they are visible on Earth, they are the result of some agent's action, and so on. Perhaps some brand of anti-nominalism (such as an appeal to universals, or 'natural' properties and relations) could support the claim that analogy is not just in the eye of the beholder; but that is an injection of metaphysics that would sit somewhat uncomfortably with Hume's empiricism. And some miracles bear significant natural resemblance to non-miracles: arguably, a person walking through a wall is significantly analogous to an electron passing through a tin foil. Indeed, all miracles had better bear at least *some* natural resemblance to our ordinary experience—otherwise, like a Jackson Pollock painting, we could not even make sense of them.

Or perhaps Hume could appeal to the distinctions drawn by science: we could regard a property or relation as 'natural' if it is recognized in our best scientific theories. But this only brings me to another problem for Hume's argument. Let us set aside the considerations just mentioned, and grant Hume that miracles bear no analogy to anything in our past experience. The trouble is that this is true to the same extent of other events as well. Science tells us that there are events that happen so rarely that they have not yet fallen under our experience—certain astronomical phenomena, for example. And other new phenomena may be quite commonplace, and yet have gone unnoticed—this was once true of the effects of magnetism, for instance, and more recently of various quantum mechanical phenomena—and indeed it is one of science's tasks to discover them. Put simply, if miracles



get vanishingly small probability because they are so disanalogous to our past experience, then so should these events. However, Hume would hardly want us to remain sceptical about all such scientific findings.

To sum up: there is nothing wrong with Hume's balancing principle (in the 'only if' direction that he needs for his argument). There *is* something wrong with Hume's claims about the magnitudes of the probabilities being balanced. He surmises that the probability of a miracle's occurrence must always be vanishingly small—in particular, always smaller than the probability of falsehood of the testimony to that miracle. He believes that miracles are rendered so improbable because they are utterly disanalogous to anything that we have experienced. I have argued that this will cut no ice with a person who has high prior probabilities for God's intervening in the world in various ways. Furthermore, even granting him his somewhat problematic notion of 'strength-of-analogy', whether or not miracles count as analogous to familiar events will depend on which respects of analogy are focused upon. In any case, if strength-of-analogy is such a crucial determinant of a reasonable person's probability function, then that person should also be a sceptic about all spectacular scientific discoveries. And that is absurd.

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# 5

# Epistemological Foundations for the Cosmological Argument

*Robert Koons*

## I. INTRODUCTION

The cosmological argument—the argument from contingency to the existence of a necessary First Cause—forms the core of a long-standing research programme in philosophical theology. Even if such theistic arguments are, as Plantinga has demonstrated, unnecessary for the reasonableness of theistic belief, a successful proof would by all accounts have considerable significance. The cosmological argument has in recent years garnered considerable respect, both from theists and agnostics. However, the central assumption of that argument, a principle of sufficient reason or general causation, has failed to win universal acceptance. A recent book by Alexander Pruss (2006a), *The Principle of Sufficient Reason*, has addressed this question with a number of ingenious appeals to our metaphysical intuitions. In this paper, I will attempt to complement Pruss's efforts through an appeal to epistemology.

In the early modern period (from Descartes through Kant, at least), the epistemological need for a principle of general causation was a commonplace. However, the collapse of Cartesian foundationalism in the first half of the twentieth century resulted in a general neglect of the role of such a causal principle in accounting for our empirical knowledge. I will not argue for a return to Cartesian assumptions: I accept a broadly common-sense, Reidian or Moorean approach to epistemology. However, I will argue that the need to secure knowledge against the possibility of undermining defeaters leads to the restoration of the principle of general causation to an exalted status in epistemology.

Any plausible principle of general causation must fall short of absolute universality. If everything must have a cause, then this would apply to