

Hume on Miracles, Frequencies, and Prior Probabilities (1998)

Victor Reppert

I. Hume's Argument

Bertrand Russell was reportedly once asked what he would say to God if he were to find himself confronted by the Almighty about why he had not believed in God's existence. He said that he would tell God "Not enough evidence, God, not enough evidence!"^[1] But perhaps, if God failed to give Russell enough evidence, it was not God's fault. We are inclined to suppose that God could satisfy Russell by performing a spectacular miracle for Russell's benefit. But if the reasoning in David Hume's epistemological argument against belief in miracles^[2] is correct, then no matter how hard God tries, God cannot give Russell an evidentially justified belief in Himself by performing miracles. According to Hume, no matter what miracles God performs, it is always more reasonable to believe that the event in question has a natural cause and is not miraculous. Hence, if Russell needs a miracle to believe reasonably in God, then Russell is out of luck. Russell cannot complain about God's failure to provide evidence, since none would be sufficient. But God cannot complain about Russell's failure to believe.

Hume's argument is actually directed against testimony-based belief in the miraculous, although others have extended the argument to the case of miracles directly experienced.^[3] It proceeds by two steps. The first step is an argument for the claim that the antecedent probability of an event's occurrence diminishes the credibility of testimony to it. That is, we must not only consider the credibility of the testifier, but also the antecedent probability of that which is testified to. The second step in Hume's argument is a defense of his claim that the miraculous nature of a purported event makes its antecedent probability as small as could possibly be imagined; that any combination of natural events, however antecedently improbable, is antecedently more probable than a scenario involving supernatural intervention. If this argument is successful, then Hume has successfully impugned the rationality of anyone (including millions of Christians who believe in the resurrection of Jesus) who believes that a miracle has occurred.

In recent years, several attempts have been made to bring considerations based on Bayes' theorem to bear on Hume's essay.^[4] But while Bayesian theory explains clearly how one goes from an antecedent probability to a subsequent probability, Bayesian theory is not so clear on how one establishes prior probabilities in the first place. Some Bayesians have attempted to defend a view that says that prior probabilities can and must be based on the frequency with which event-types occur in experience. This model of prior probabilities, I contend, is implicit within Hume's argument against miracles. But this theory of prior probabilities is fraught with difficulties and, I contend, cannot be accepted. Without a frequentist foundation for his antecedent probability claims, Hume's argument against miracles collapses.

II. Antecedent Probabilities in Hume's Essay

Hume's argument against miracles makes its case against miracles on the grounds 1) that one must consider the antecedent probability of the event reported as well as the credibility of the reporter, and 2) that miracles, as violations natural law, are less probable than any set of natural events required to explain the known facts. The first of these principles is elucidated by Hume as follows:

When anyone 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 have really 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 the 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.[5]

Now I think this passage makes a somewhat question-begging identification of improbability with miraculousness,[6] but it seems commonsensical. I do not accept everything from the same source with equal assurance. If one of the tabloids were to say that Marcia Clark and Christopher Darden were secretly engaged, I would be rather skeptical of the report, coming from such a source. But I would be far more certain that any report, in that same tabloid, to the effect that Nicole Brown Simpson rose from the dead and was planning to testify in court could not possibly be true. Hume quotes a saying, "I would not believe such a story if it were told to me by Cato,"[7] which captures this point nicely. Clearly, in common sense reasoning, the intrinsic incredibility of an event can overthrow the testimony of otherwise credible witnesses.

But when one attempts to develop this idea into mathematical probability theory, one must avoid untoward consequences, and Hume simply did not possess the mathematical sophistication to accomplish this. If the theory of probabilistic inference he himself presents in "Of Miracles" is taken literally, it has the consequence that if the Arizona Republic were to report that I won the lottery, you should disbelieve the report, because my chance of winning the lottery is less than the percentage of erroneous reports by the Republic. But surely this is implausible.

The development of Bayes' theorem allows a person to "factor in" the antecedent probability of an event's occurrence without being forced by one's theory to reject such things as newspaper reports of lottery victories. According to Bayes' Theorem:

$$p(h/e \ \& \ k) = \frac{p(h/k) \times p(e/h \ \& \ k)}{p(e/k)}$$

Bayes' theorem isolates three factors: the prior probability of the hypothesis (in this case, that a miracle has occurred) given background knowledge, the probability of the evidence (in this case testimony) given both the hypothesis and background knowledge, and the probability of the evidence given background knowledge alone. So, to apply Bayes' theorem to a piece of testimonial evidence, we need to ask 1) how antecedently probably the event testified to is, 2) how likely it would be for this piece of testimony to be put forward given the fact that the hypothesis is true, and 3) how likely this piece of testimony would be regardless of whether the hypothesis is true or not. An antecedently improbable event can be strongly supported by testimonial evidence if it is highly probable that the event would not be testified to if it did not occur and would be testified to if it did occur.

We can see how Bayes' theorem can handle reports of lottery victories. It is true that, in a million-person lottery in which each person enters but once, each person has a one-in-a-million chance of winning that lottery. But one's chance of being reported the winner of the lottery is about as great as one's chance of winning the lottery; in fact, lottery victories are typically reported just in case lottery victories occur. $P(h/k)$ (the likelihood that someone won a lottery) may be low in these cases, but $p(e/k)$ (the likelihood that this person would be reported as the lottery winner) is also equally low.

But in the case of miracles, these are often falsely reported, sometimes even by otherwise credible witnesses. So Hume's suspiciousness of miracle reports seems justified, in that one must carefully consider the prior improbability of the miracle report and accept the report only if accepting the miracle would be accepting a lesser improbability than rejecting the claim and believing that this miracle was falsely reported.

III. The Prior Improbability of Miracles

So far, so Humean. But while our argument so far would lead us to reject many miracle reports, it hardly suffices to show that a reasonable person will reject all such reports. All we have shown is that if $p(h/k)$ is sufficiently low, then this factor can require us to disbelieve the miracle report even when $p(e/h \ \& \ k)$ is high. What it does not do is show that $p(h/k)$ is, or ought to be, always sufficiently low that no matter how high $p(e/h \ \& \ k)$ is and how low $p(e/k)$ is, belief in the hypothesis that a miracle has occurred will always be unjustified. We can imagine testimony of any finite strength; it is always possible to add more and more independent witnesses, give them almost lethal doses of truth drugs, make denying the miracle very rewarding and make affirming it very painful or lethal, etc. In order to guarantee that disbelief in miracles will always be rational, it is necessary that the prior probability of their occurrence be zero. Or, if not zero, at least very, very, very low. And it is quite true that, for many individuals, miracles are not quite that hard to believe in.

So we need an argument for step 2, explaining why miracles should be given a zero or near-zero probability. And indeed Hume provides one:

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 could possibly be imagined.[8]

Now the concept of a miracle as a violation of the laws of nature has its problems, but if an event did not contradict our naturalistic expectations, we would not be inclined to look for a supernatural cause for it. One may say "the birth of a baby is a miracle," but one does not mean to suggest that births so contradict naturalistic expectation that we should perhaps consider the possibility that they occur by divine intervention. But Hume points out that our confidence in human testimony is based itself on experience; on that past conjunction between testimony and the truth of what is testified to. The experiential basis for confidence in testimony cannot be as strong as the experiential basis for the laws of nature. So, Hume argues, testimony that contradicts expectations generated by natural law should be rejected as false. That some person deviate from this rule and accept testimony to miracles is, on Hume's view, to be explained in terms of cognitive pathology.

To understand this better, let us consider a case that was certainly in the back of Hume's mind when he wrote "Of Miracles," the case of the resurrection of Jesus. Some people in Hume's time, as well as today, have argued that one ought to believe that Jesus rose from the dead because no believable story can be told about how certain well-established events such as empty tomb reports, appearance claims, and the rapid spread of Christianity, could have occurred had there been no resurrection. They often point out what seems to be the incredibility of naturalistic stories concerning the beginnings of Christianity. For example, some opponents of Jesus's resurrection have maintained that the disciples stole the body of Jesus and then pretended that the tomb was empty because its occupant had risen from the dead. But critics of this "theft theory" have pointed out that we have reason to suppose that many of the apostles, who would have had to have been the perpetrators of this hoax, were martyred for proclaiming Jesus's resurrection. Since human beings typically do not die for things they know to be untrue, it is argued that the theft theory is less plausible than the claim that Jesus really did rise from the dead.[9]

It is here that Hume's argument goes to work. If twelve people's dying for what they know to be untrue is improbable, it is even less probable that Jesus rose from the dead. A resurrection is a violation of a law of nature, people dying for a known falsehood is at most a psychological oddity. The experiential support for the claim "Dead people stay dead" is greater than our experiential support for "people never die for things they know to be false." So if we must choose between the theft theory and accepting a resurrection (and of course these need not be our only choices), then the theft theory, with all its problems, must be accepted.

Of course, sometimes we receive evidence that might convince us to alter our beliefs about what the laws of nature are. Thus pre-Einstein, it was thought to be naturally impossible that someone could travel in a

near-light-speed spaceship and age almost not at all, while people on earth age fifty years. But the very reason we have for doubting the expectation we formed based on what we thought the laws of nature were is exactly the reason we have for supposing the event could occur without supernatural intervention.[10]

But one might ask Hume at this point, what about God? Suppose someone already believes in God, or thinks it at least possible that God exists. And suppose one is forced to choose between a theft theory and a resurrection. Now it seems unlikely that God would cause a group of people to engage in a conspiracy to propagate a religious hoax about some teacher's rising from the dead and then give them the courage (or foolhardiness) to defend their hoax to the death. But it does seem to fit better the traditional picture of God that He might raise a great prophet, or his son, from the dead to certify that person's special place in his scheme of things. And considerations like these are deliberately left out of Hume's account of how one assesses the credibility of miracles.

Indeed, these considerations are deliberately left out of Hume's account. Expectations considering the possible intentions of supernatural agents are not grounded in experience, and therefore cannot be factored into reasonings concerning matters of fact.

Though the being to whom the miracle is ascribed be almighty, it does not, upon this account become a whit more probable; since it is impossible for us to know the attributes or actions of such a being, otherwise than from the experience we have of his productions, in the usual course of nature. *This still reduces us to past observation, and obliges us to compare the instance of the violations of truth in the testimony of men, with those of the violation of the laws of nature by miracles, in order to judge which of them is most likely and probable.* [11] (italics mine).

This is a strong statement of Hume's empiricism concerning the sources of probability judgments, and it is the key to his position on miracles. Only those probability judgments that can be directly tied to experienced frequencies (in this case the frequency of false statements as opposed to the frequency of miraculous violations of the laws of nature) can be relevantly employed in assessing the probability that an event has occurred.

Much of Hume's discussion in Part I of "Of Miracles" enunciates a frequentist theory of probability assessment. Consider the following passage, which is typical:

And, as the evidence, derived from witnesses and human testimony, is founded on past experience, so it varies with the experience, and is regarded either as a proof or a probability, according as the conjunction between any particular kind of report and any kind of object has been found to be constant or variable. There are a number of circumstances to be taken into consideration in all judgments of this kind; and the ultimate standard, by which we determine all disputes, that may arise concerning them, is always derived from experience and observation.[12]

It will be the contention of my subsequent discussion that this connection between experience and probabilities that Hume draws here, while seeming to accord with common sense, really cannot be sustained. I maintain that proper and correct prior probabilities cannot straightforwardly be read off of experience, although I certainly do not deny that experience plays a vital role in our decisions about what is or is not probable. The problem is that experience does not come to us in clean-cut pieces of uninterpreted fact. Rather, what we call experience is interpreted in terms of already-existing theoretical constructs. In this essay it seems that Hume, careful and skeptical thinker that he was, betrays a commitment to the Enlightenment ideal of a perfectly neutral and presupposition-free inquiry, an ideal shown by more recent developments in the philosophy of science to be impossible to achieve.

IV. Probability and its Empirical Foundations

According to Hume, probabilistic beliefs concerning the intentions of a supernatural being are inadmissible in reasonings concerning matters of fact because these beliefs fail to be grounded in experience. This

insistence has been enunciated by Bayesian theorists, and it is the frequency theory. But the frequency theory has fallen on hard times, and most Bayesian theorists do not accept it, largely because of difficulties related to the problem of the single case.

The problem is this. Frequencies give us information as to how often event-types have occurred in the past. But we often want to know the probability of particular events: this coin-toss, this horse-race, this piece of testimony to the miraculous, etc. If we are to accept Hume's conclusion that testimony to the miraculous ought never to be accepted, we need to show more than just that rejecting testimony to miracles in general is a good idea because false miracle claims outnumber true ones. Many Christians are skeptical of miracle claims put forward by televangelists, but nonetheless believe that the evidence in support of the resurrection of Jesus, and perhaps in support of some modern miracles, is sufficient to overthrow our ordinary presumption against accepting miracle reports.

Frequentists have attempted to assess the prior probability of individual purported events by assimilating them some class of events. Thus, we assess the probability of a particular coin-toss as $1/2$ in virtue of its membership in the class of coin-tosses. But the question is which class the relevant reference class is. The claimed resurrection of Jesus falls into many classes: into the class of miracles, into the class of events reported in Scripture, the class of events reported by Peter, the class of events believed by millions to have occurred, into the class of events basic to the belief-system of a religion, etc. Of course it is what is at issue between orthodox Christians and their opponents whether the class of miracles in the life of Jesus is empty or relatively large.

Wesley Salmon attempts to solve this problem by defining the conception of an epistemically homogeneous reference class. A class is homogenous just in case so far as we know it cannot be subdivided in a statistically relevant way. Thus, according to Salmon, if Jackson hits .322 overall but hits .294 on Wednesdays, the Wednesday statistic is not to be treated as relevant unless we know something about Wednesday that makes a difference as to how well Jackson will bat. Thus, according to Salmon, the relevant reference class is the largest homogeneous reference class; we should try to get a sample as large as we can without overlooking a statistically relevant factor.[\[13\]](#)

There are two difficulties with this method as an attempt to satisfy Hume's strong empiricist requirements for properly grounded probability judgments. First, questions of statistical relevance cannot be fully adjudicated by appeal to frequencies. Second, the very heuristic of selecting the largest homogeneous reference class cannot be read off experience.

On the first point, consider the situation of a baseball manager who must choose between allowing Wallace to bat or letting Avery pinch-hit for him. Wallace has an overall batting average of .272, while Avery's is .262. But the pitcher is left-handed, and while Wallace bats .242 against left-handed pitching, Avery bats .302. Nevertheless, the pitcher is Williams, and while Avery is 2-for-10 against Williams, Wallace is 4-for-11. Have these batters faced Williams too few times for this last statistic to count? And can this be straightforwardly determined from experience? What is needed is a judgment call about the relevance of this statistical information, and this judgment cannot simply be read straightforwardly from frequencies. The frequentist's epistemology for probabilistic beliefs, insofar as it is an attempt to conform to empiricist/foundationalist constraints, seems impossible to complete.

On the second point, is the heuristic of selecting the smallest homogeneous reference class justified simply by an appeal to experience? Admittedly it makes a certain amount of common sense. But this attempt to go from a statistical "is" to an epistemological "ought" seems to suffer from with the same (or worse) difficulties that getting "ought" from "is" suffers from in ethics, and here again Hume's empiricist/foundationalist assumptions impose an impossible burden on probability theory.

The frequency theory seems clearly to be the theory of priors that Hume would have adopted had he been involved in the contemporary Bayesian debate on prior probabilities. But even this theory fails to adjudicate the issue concerning miracles in Hume's favor or in favor of the defenders of miracles, because it

lacks the resources within itself to select the appropriate reference class. This inability to provide determinate answers to questions of probability is what makes this theory inadequate for resolving the question of miracles. Therefore Hume cannot justify his claim that it is never rational to believe testimony to any miracle on the grounds that miracles are less frequent in experience than false miracle reports.[14]

V. Hume's Essay Without Frequency Theory

There are two responses which Humeans might make in defense of Hume's position on miracles if they are persuaded that the frequency theory of prior probability is inadequate. One is to challenge the coherence of the employment of probabilistic reasoning on the part of persons committed to the possibility of evidence for miracles.[15] It might be suggested that, in virtue of our custom-and-habit imposed commitment to a law-governed universe, persons are committed to a Humean view of miracles, even though, incoherently, they may treat miracles at times as if they were epistemic possibilities or even actualities. Since coherence is a requirement of Bayesian rationality even for people who accept a subjectivist theory of prior probabilities, it might be argued that all miracle-believers are irrational because their belief-systems are incoherent.

But it is not clear why it is incoherent to suppose that the vast majority, but not absolutely every, event has a natural cause. That we usually ignore, for practical purposes, the possibility of supernatural intervention does not mean that we are committed to assigning a vanishing probability to supernatural intervention. Some possibilities are sufficiently remote as to make it unreasonable to try to do anything about them, but not so remote as to require us to disbelieve strong testimony to these possibilities. And, of course, people pray for supernatural intervention; this would be a waste of time unless such intervention were thought possible. Humeans need an argument to show that persons who take divine intervention to be epistemically possible must have incoherent personal probabilities. Such an argument, to my knowledge, has not been provided by Hume or by anyone else.

Michael Root offers an argument in support of Hume that, in essence, makes a charge of self-referential incoherence against those who employ testimony to support belief in miracles. According to the view Root attributes to Hume, testimony owes its force to the Principle of the Uniformity of Nature. If we are to make an inference from the truthfulness of past testimony to the truthfulness of present or future testimony, we need to assume that nature is uniformly lawful; that what goes on in the future will resemble what went on in the past. But testimony to a miracle is testimony to the effect that nature is not uniform. Thus, if nature is uniform, then testimony to the miraculous is false, but if nature is not uniform, then testimony is not a reliable source of information, and therefore it fails to justify belief. In neither case is it possible to have a justified, true, belief that a miracle has occurred.[16]

But this argument conflates the claim that the future will resemble the past in some respect with the claim that nature is strictly uniform in the sense that it is deterministic and closed. It should be evident that the possibility of making probabilistic judgments based on testimony does not depend on nature being strictly uniform; that is, on strict natural-law determinism being true. If it did, then the acceptance of indeterminism in the area of quantum mechanics would have destroyed the scientific enterprise which, after all, relies heavily on testimony for its operation. We do need to believe that what has happened in the past is some indication of what is likely to happen in the future. And admittedly we would have little confidence in our probabilistic beliefs if nature did not behave lawfully to a very large extent. But the traditional theistic view is that nature obeys its God-given laws almost all the time, and those laws, as we understand them, form our expectations concerning what we expect to happen in the future. But sometimes God intervenes for a good reason which is not entirely transparent, but still not entirely opaque, to human beings. There are resemblances between the way in which nature behaves in the past and the way it will behave in the future (God the creator of nature sees to that). But beliefs about the likely plans and purposes of God must play a role in the credence functions, not only of believers, but of those who think God's existence epistemically possible. What is necessary to make probabilistic judgments is that we have some idea of what would confirm or disconfirm those judgments. It is not necessary to assume nature to be a closed, deterministic system.

The other basic line of argument involves the contention that in rejecting Hume's naturalistic constraints on prior probabilities, we open the floodgates and allow that just any belief may be rational. Dorothy Coleman responds to the charge that Hume's position involves a dogmatic rejection of supernatural causation as follows:

The difficulty with this argument is that it justifies too much. First, unless one assumes that all anomalous events appropriate for God to cause are so caused, one cannot rationally discriminate between those that are and those that are not. Second, one can no more reasonably assume that an anomalous event is caused by God given a set of assumptions about the existence and nature of God any more than one can say the event is caused by unknown alien life-forms, gremlins, demons, fairies, or any other fanciful creature given a similar set of assumptions about their imagined pattern of behavior. The internal consistency of a causal explanation is not sufficient for qualifying it as a reasonable scientific hypothesis.[\[17\]](#)

In response to Coleman's first point, it should be pointed out that religious believers, and even religious unbelievers, can, based on their own belief system, have ideas with respect to what they expect God (if God exists) to do. Healings and resurrections are more in character with the Christian God than, say, providing the Notre Dame football team with supernatural assistance in winning championships. Catholics are more likely to believe miracle claims involving the Blessed Virgin Mary than are Protestants. Of course, one can say "God did it" about anything. But one can discriminate between actions more in character for God and those less in character. Those who believe in miracles typically believe that God has performed many miracles over a long period of time, and can formulate a general theory as to what types of miracles are most likely under certain circumstances. Expectations concerning the activities of God are not going to be as precise as expectations concerning electrons; nevertheless they are sufficient to make some miracle claims more plausible than others, relative to a belief system.

Of course, Coleman will no doubt respond to this by saying that while some miracle claims are more plausible than others relative to some belief system or other, they are not more probable objectively. But if she is asking for objective probabilities, then she needs a theory of objective probability that permits us to grade the probability of particular events. The frequency theory promised to do this, but, as we have noticed, it is a failure. So in order to object in this manner, she needs to produce a theory of prior probability according to which the most probable miraculous scenario is less probable than the least probable non-miraculous scenario. This is a daunting task, to say the least.

As for gremlins, etc., it makes a good deal of difference whether the advocate of a gremlin-theory has some idea of what a gremlin is more or less likely to do. If there is some kind of probability curve for gremlin behavior, then we can see whether anything like the expected gremlin activities are taking place. If they aren't, then the gremlin theory is disconfirmed. If the gremlin advocate simply wishes to attribute this, that, and the other to gremlins without offering any suggestion as to what gremlins are likely to do; if the gremlin advocate offers gremlin hypotheses only after the fact, whenever other types of explanation are difficult to find, then gremlin-hypotheses are empirically empty, and are not really hypotheses at all.

The miracles attributed to God in the Biblical tradition do not seem to be typical gremlin-antics. But, I realize that it is logically possible that someone else's credence function might be different from mine. But even on the subjectivist theory of prior probabilities I am not required to admit the existence of real rational gremlin-believers. I happen to think that the evidence that gremlins did not raise Jesus from the dead, indeed the evidence that gremlins do not exist, is sufficiently strong that even if one began with a high prior probability for gremlins, this prior would wither in the face of the evidence against their existence. Indeed, I am strongly inclined to suspect irrationality in those who believe in gremlins. But what underlies this belief is simply the a posteriori evidence against their existence, and not some general theory of prior probabilities. A Bayesian evolutionist might perhaps admit the theoretical possibility that a creationist could be rational, while at the same time maintaining that in fact all creationists are irrational. An opponent of miracles can indeed maintain that investigation of the evidence in support of purported miracles will prove that none of these miracles can be accepted by reasonable people concerning the facts surrounding

them. But I maintain that we cannot have what Hume hopes to provide, an argument "from the nature of the fact" that would make the very investigation of particular miracle claims unnecessary.

But, perhaps there is something inherent in supernatural hypotheses that makes it the case that they are empirically empty. Keith Parsons, in criticizing attempts to provide scientific support for theistic beliefs, writes:

Science is unavoidably naturalistic, or atheistic if you prefer. Science operates in terms of scrutable, independently testable entities that operate in accordance with knowable regularities. Supernatural beings, on the other hand, are essentially mysterious; claims made on their behalf are not independently checkable, and there are no "laws of supernature" governing their behavior. Furthermore, "explanations" in terms of supernatural entities are inevitably post hoc and untestable. In other words, proponents of supernaturalistic theories can glibly account for things we already know, but become strangely silent when asked to predict something new, something that would allow their theory to be tested.[18]

Even though the locus of discussions of miracles is historical rather than scientific, if it is the case that supernaturalist hypotheses are inevitably untestable, this would mean that supernaturalist claims cannot be genuinely supported by evidence. But some points can be made in response to this position. First of all, I see no in principle impossibility in "laws of supernature." One cannot, of course, generate deterministic laws governing divine conduct, but one cannot generate such laws concerning the behavior of subatomic particles, either. One can, of course, form probabilistic expectations concerning the conduct of subatomic particles, but, as we have noted, one can generate probabilistic expectations concerning divine conduct as well. It would disconfirm belief in the Christian God if Jim Bakker were to die and rise again on the third day, ascending into heaven a few weeks later. The "laws" of supernature that Christians or other theists are inclined to postulate may not be as detailed as the laws scientists hope to discover in nature, but they leave theistic claims open to confirmation and disconfirmation.

Second, someone who postulates a miraculous account of something may try to claim that by admitting a miracle in the background, we render a number of natural events more open to naturalistic explanation. If we find that someone refuses to recant his faith when threatened with death by torture, this occurrence is a natural event. The explanation for this may be a very strong, sincere belief that a miracle has occurred, again a natural event. But it may be that the least "forced" explanation for this sincere belief is that a miracle did occur.

It is a mistake to think that just because a theory involves commitment to the supernatural, that the supernatural content is all that there is to the theory. A supernaturalist theory can have a naturalistic "trail" of evidence for which can be found or not found. Those who believe that Jesus was raised from the dead believe that Jesus's body will not be found. If it is found (or if it had been found in the first century), traditional Christian belief will be faced with a devastating disconfirmation. If believers choose (or had chosen) to maintain their belief somehow in the face of this kind of counterevidence, this would perhaps show their irrationality, but would not show the untestability of their belief per se.

It is quite true that it is always possible to "save" a supernaturalist hypothesis from refutation by manipulating the theological background beliefs to protect one's theory. Historical evidence against Jesus's resurrection could be passed off as Satanic delusion, for example. Recall Edmund Gosse's attempt to save creationism by saying that the fossils were put in the ground by God to fool the scientists. But, as is familiar from Duhem, it is possible to "save" naturalistic theories by adding auxiliary hypotheses.[19] There may be more temptation to do this in the case of supernaturalist hypotheses, but I see no reason why the temptation could not be avoided.

Admittedly, many people who have advanced supernaturalist theories in a scientific context have used the supernatural content of their beliefs as a kind of all-purpose escape clause to avoid the impact of counterevidence. A good example would be scientific creationists of the "young earth" variety, whose main

explanation for the sedimentation of different life forms is a worldwide Noachian deluge. As examples of difficulties for this kind of theory, we might mention the fact that it is hard to explain how all earthly species could get into an ark whose dimensions are given in Scripture, the fact that it is hard to see how species could relocate at such great distances from Ararat after the Flood, and the fact that if the earth is as young as they claim, it is hard to see how there can be stars 500,000 light years away. In *Abusing Science* Philip Kitcher claims that while creationists propose to escape the claim that they are proposing an explicitly religious theory by not making specific reference to the revealed character of the Creator, in fact they deal with difficulties for their theory either by ignoring these difficulties or by appealing to the august and mysterious nature of God as an all-purpose escape clause. A comment like this, for Whitcomb and Morris's *The Genesis Flood*, is an example of the use of such an escape clause:

The more we study the fascinating story of animal distribution around the earth, the more convinced we have become that this vast river of variegated life forms, moving ever outward from the Asiatic mainland, across the continents and seas, has not been a chance and haphazard phenomenon. Instead we see the hand of God guiding and directing these creatures in ways that man, with all his ingenuity, has never been able to fathom, in order that the great commission to the postdiluvian animal kingdom might be carried out, and that "they might breed abundantly in the earth, and be fruitful and multiply upon the earth" (Gen 8.17).[20]

Of course, it may be a divine mystery how these things happened. But if it is, the right thing to say from the point of view of science (or even reasonable belief-formation) is that they happened in some other way, in a way that requires less faith in divine mysteries.

But while Kitcher quite adeptly diagnoses the use of religious concepts to insulate a theory from empirical disconfirmation, he explicitly indicates that theologically grounded theories need not employ an all-purpose escape clause. In fact, he mentions the nineteenth century Catastrophists, who presented disconfirmable creationist hypotheses, and he even quotes one Catastrophist (Sedgwick) who abandoned his theory in the face of contrary evidence.

Although pure versions of Creationism were no longer in vogue among scientists by the end of the eighteenth century, they had flourished earlier (in the writings of Thomas Burnet, William Whiston and others). Moreover, variants of Creationism were supported by a number of eminent nineteenth century scientists--William Buckland, Adam Sedgwick, and Louis Agassiz, for example. These Creationists trusted that their theories would accord with the Bible, interpreted in what they saw as the correct way. However, that fact does not affect the scientific status of those theories. Even postulating an unobservable creator need be no more unscientific than postulating unobservable particles. *What matters is the character of the proposals and the ways in which they are articulated and defended.* The great scientific creationists of the eighteenth and nineteenth centuries offered problem-solving strategies for many of the questions addressed by evolutionary theory. They struggled hard to explain the observed distribution of fossils. Sedgwick, Buckland, and others practiced genuine science. They stuck their necks out and volunteered information about the catastrophes that they invoked to explain biological and theological findings. Because their theories offered definite proposals, those theories were refutable. Indeed, the theories actually achieved refutation.[21] (italics mine)

Young-earth creationists seem to me to be so committed to what they take to be a literal reading of Genesis that they are bound to defend it regardless of what counter-evidence may emerge. But this is not something one can infer simply from the fact that they have supernaturalist commitments. Both naturalists and supernaturalists can attempt to insulate their convictions from counterevidence, in fact Hume's essay on miracles is seen by many defenders of supernaturalism as a very clever attempt to do just that. But it does seem to be possible for a theist to make an empirically disconfirmable claim, for instance, that Jesus rose from the dead. Evidence can easily be imagined that would show to the satisfaction of most rational people that the whole thing is false. So long as theistic claims are not employed as all-purpose escape clauses to be employed in the face of disconfirming evidence, the claims can be supported by empirical evidence.

So where does this leave God and Bertrand Russell? Could God have given him enough evidence for his existence? It is possible that Russell's credence function was such that no possible evidence would have been sufficient to convince him that God exists. But from what I know of Russell this was not the case. Whether Russell ignored available evidence, whether God has a reason for not having given Russell the kind of evidence he would have needed, or whether God's only excuse is that he does not exist, is a topic far, far beyond the scope of this paper.

VI. Postscript Concerning Apologetics

If my foregoing discussion is correct, opponents of, say, the resurrection of Jesus cannot appeal to a general theory of probability to prove that anyone who accepts the resurrection is being irrational. It is also a consequence that different people can reasonably be expected to have different credence functions with respect to Christian (and other) miracle claims. If you want to convince some people that Christ was resurrected, you have a much heavier burden of proof than you have in convincing others. It must be noted that there is no way, on the model I have presented, to show that everyone who denies the Resurrection is irrational, or engaged in bad faith. Of course, one can still believe that unbelievers disbelieve because of "sin" or "suppressing the truth," or what have you. But given the legitimate differences that can exist concerning the antecedent probability of the miraculous, I don't see how such charges can be defended. So the lesson here, I think, is that both apologetics and anti-apologetics should be engaged in persuasion, not coercion, and that the attempt to ground irrationality charges against one's opponents is a misguided enterprise.[\[22\]](#)

NOTES

[1] Wesley Salmon, "Religion and Science: A New Look at Hume's Dialogues," in *Philosophical Studies* 33 (1978), p. 176.

[2] David Hume, *Enquiries Concerning Human Understanding and Concerning the Principles of Morals*, ed. L. A. Selby-Bigge, 2nd. ed. (1902; Oxford, 1972), pp. 109-131.

[3] For example Michael Root extends Hume's argument to cover direct experience in "Miracles and the Uniformity of Nature" *American Philosophical Quarterly* 26 (October 1989), pp. 338-339.

[4] Notably Bruce Langtry, "Miracles and the Principles of Relative Likelihood," *International Journal for Philosophy of Religion* 18 (1985), pp. 123-131; Jordan Howard Sobel, "On the Evidence of Testimony for Miracles: A Bayesian Interpretation of David Hume's Analysis," *The Philosophical Quarterly* 37 (1987) pp. 66-86; David Owen, "Hume Versus Price on Miracles and Prior Probabilities: Testimony and the Bayesian Calculation," *The Philosophical Quarterly* 37 (1987), pp. 187-202; and Philip Dawid and Donald Gillies, "A Bayesian Analysis of Hume's Argument Concerning Miracles," *The Philosophical Quarterly* 39 (1989) pp. 57-65.

[5] *Ibid.* p. 116.

[6] See Victor Reppert, "Miracles and the Case for Theism," *International Journal for Philosophy of Religion*, (1989) pp. 44-45.

[7] *Ibid.* p. 115. The Cato referred to here is the ancient Roman patriot Cato, not O. J. Simpson's houseguest Kato, or Nicole's dog of the same name.

[8] *Ibid.* p. 114.

[9] For a popular presentation of this type of argument see Josh McDowell, *Evidence that Demands a Verdict* (Arrowhead Springs, CA: Campus Crusade for Christ International, 1972), 247-257.

- [10] J. L. Mackie, *The Miracle of Theism*, pp. 24-25.
- [11] Hume, p. 129.
- [12] *Ibid.* p. 112.
- [13] Salmon, *The Foundations of Scientific Inference* (Pittsburgh: University of Pittsburgh Press, 1967), pp. 90-93.
- [14] These objections were suggested to me by in conversation by Patrick Maher.
- [15] Howard Sobel mentioned this possibility to me in correspondence.
- [16] Root, "Miracles and the Uniformity of Nature," pp. 337-338.
- [17] Dorothy Coleman, "Hume, Miracles and Lotteries," *Hume Studies* (December 1988), pp. 339-40.
- [18] Keith Parsons, "Is there a Case for Christian Theism?" in J. P. Moreland and Kai Nielsen, *Does God Exist: The Great Debate* (Nashville: Thomas Nelson, 1990) p. 189.
- [19] Pierre Duhem, *Aim and Structure of Scientific Theory*, ch. 6.
- [20] John Whitcomb and Henry M. Morris, *The Genesis Flood* (Grand Rapids: Baker Book House, 1961), p. 128.
- [21] Philip Kitcher *Abusing Science: The Case Against Creationism* (Cambridge: MIT Press, 1982), p. 125.
- [22] I am indebted to Patrick Maher and Mark Vuletic for helpful comments on previous drafts.