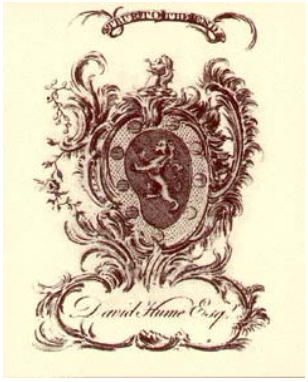

Hume, Probability, Lotteries and Miracles
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Bruce Langtry

Dorothy P. Coleman[1] has recently offered an interpretation and defence of a central strand of Hume's[2] critique of belief in miracles. Coleman is responding to a line of argument against Hume which can be identified as early as Butler's *Analogy of Religion*, and which has lately reappeared in the work of Robert Hambourger[3] and others. In this paper I assess Coleman's contribution.

Hambourger ascribes to Hume the following Principle of Relative Likelihood (PRL):

> Suppose that someone, or, perhaps, a group of people testify to the truth of a proposition P that, considered by itself, is improbable. Then to evaluate the testimony, one must weight the probability that P is true against the probability that the informants are lying or mistaken. If it is more likely that P is true than that the informants are lying or mistaken, then, on balance, the testimony renders P more likely than not, and it may be reasonable for one to believe that P. However, if it is as likely, or even more likely, that the informants are lying or mistaken than it is that P is true, then, on balance, the testimony does not render P more likely true than false, and it would not be reasonable for one to believe that P.[4]

Hambourger argues that PRL is false. He offers as a counter-example reasonable belief, on the basis of a newspaper report, that such-and-such a person has won a particular lottery.

Coleman argues that Hume held PRL, given a certain interpretation of "probability." Hambourger's lottery example does not refute PRL rightly understood. When PRL is applied to the evaluation of reports of miracles, it emerges that it would not be reasonable to believe that a miracle has occurred.

Coleman begins her defence of Hume as follows:

> Butler's argument and its reincarnation in Hambourger overlook two senses of probability: probability pertaining to events *qua* unique occurrences and probability pertaining to events *qua* instances or tokens of event types. This distinction

> approximates that made by Hume in the *Treatise* between "probability of chances" and "probability of causes" (Bk. I, Pt. III, Sect. XII and XIII). Hume's argument against the believability of miracles invokes the second sense, whereas the Butler/Hambourger argument invokes the first. Following the first sense of probability, the likelihood of an event is measured by its degree of predictability as a unique occurrence; following the second sense, it is measured by its degree of conformity to causal laws applicable to events of its type. An event having low predictability may be credible provided it conforms to relevant causal laws ... Granting that Hume's argument invokes the second sense of probability, i.e., probabilities regarding event-types, we can now see why Hambourger's lottery example does not prove to be the counterexample to Hume's principle of relative likelihood he believed it to be. The principle is to be invoked only when evaluating reports of events that do not conform to general rules or laws pertaining to events of its type. But Smith's winning the lottery is not an exception to rules governing lotteries.[5]

Here a distinction between two senses of probability is drawn in three ways: (1) Probability pertaining to events *qua* unique occurrences, contrasted with probability pertaining to events *qua* instances or tokens of event-types; (2) Probability of chances, contrasted with probability of causes; (3) Probability measured by the event's degree of predictability as a unique occurrence, contrasted with probability measured by the event's degree of conformity to causal laws applicable to events of its type.

These three characterisations of the distinction are far from equivalent. The probability that a six is thrown with a normal die concerns event-types rather than any particular occurrence, but surely falls under the heading "probability of chances"; so (1) diverges from (2). The measure of this probability is 1/6, but we cannot reasonably take 1/6 to measure the degree of conformity to causal laws of throws of six with a normal die; so (1) diverges from (3). The probability of a woman who has contracted breast cancer dying within five years of onset is a case of probability of causes, but we can hardly suppose that what measures this probability also measures the degree of conformity to causal laws of deaths from breast cancer; so (2) diverges from (3).

It is unclear what Coleman means by "degree of conformity to causal laws applicable to events of its type." Her example of Caesar crossing the Rubicon[6] suggests that an event so conforms if and only if it does not involve a violation of any law of nature; but this does not fit

in well with the *Lottovania Times* example.[7] Smith of Lottovania's winning this months's lottery does not violate any law of nature. The event is in a sense contrary to our past experience of Lottovanian lotteries, and we may conjecture that there has been some unitary cause of this fact — for example, some intention of the lottery operators — which is all that Coleman's talk of "rules of the lottery" amounts to. So suppose that I have never met an Eskimo. What measures the probability, in Coleman's second sense of "probability," that I will meet an Eskimo tomorrow?

Hume holds that reports of miracles should be evaluated in accordance with general principles for dealing with reports of events for which our past experience does not provide uniform support. What principles should we use in dealing with reports of unusual and surprising events like a woman's winning a marathon a week after having her appendix removed? The same principles are to be used in dealing with reports of miracles. Hume treats a violation of a law of nature as the limit case of the unusual, that is, the case in which the fact attested has **never** fallen under our observation. It is hardly necessary here to quote Hume in full. The passages I have in mind contain remarks like the following: *All probability, then, supposes an opposition of experiments and observations* (E 111); and *Suppose, for instance, that the fact, which the testimony endeavours to establish, partakes of the extraordinary and marvellous; in that case, the evidence, resulting from the testimony, admits of a diminution, greater or less, in proportion as the fact is more or less unusual* (E 113). If PRL encapsulates Hume's view, then Hume did not confine PRL's scope to reports of events that do not conform to general laws or rules of their type.

All in all it is plain that Coleman has failed in her attempt to rule out Hambourger's lottery case as a counter-example to PRL. But even if she had succeeded, there would have been other counter-examples. Suppose that published medical statistics say that, over that past twenty years, of 18-year old women who smoke heavily, 1 in 5000 have a heart attack before reaching their 21st birthday. Suppose also that all we know about Winifred is that she is an 18-year old woman who smokes heavily. In that case our best estimate of the probability that Winifred will have a heart attack before reaching her 21st birthday is 1/5000. Presumably Hume would classify this as probability of causes rather than probability of chances. Now suppose that Winifred is listed on a hospital printout of heart attack patients. Such printouts have in the past been found contain incorrect names in 1 in every 3000 cases. What guidance does PRL give concerning whether it would be reasonable to believe that Winifred has had a heart attack?

Well PRL tells us to weigh the prior probability that Winifred has had a heart attack, which is 1/5000, against the probability that the hospital printout contains a lie or mistake, which is 1/3000. (The latter is 1/3000 because by "the probability that the informants are lying or mistaken" Hambourger means the prior probability of the informants' giving **some lying or mistaken report or other** on this occasion.) Since the former probability is less than the latter, PRL tells us not to believe that Winifred has had a heart attack. Intuitively, this seems to be the wrong conclusion to draw from the example. So PRL itself is objectionable.

Elsewhere I have given further attention to PRL, and argued that if we are to talk about epistemic probability in connection with miracles, in anything other than a most informal fashion, then we should employ Bayes's Theorem in our analysis.[8] There is no need to go over this ground here, since Coleman's treatment of miracles can be assessed without doing so.

So far I have argued against Coleman's interpretation and defence of a principle of relative likelihood which she attributes to Hume. The next stage of Coleman's argument is as follows: let us suppose that there occurred some striking event, such as the words of the Bible being spelled out by the clouds over each region of the world, and that testimony provided sufficient grounds for believing that the event had occurred. The question remains whether it would be reasonable to believe that the event is a miracle. On what grounds would it be reasonable to infer that the event was inexplicable in terms of the laws of nature (known and unknown)? The event could always be taken as evidence that the laws of nature are not what we thought them to be, or as evidence that special natural circumstances obtained. Past experience shows that frequently what at one time are considered candidate violations of natural laws are found at some later time not to be genuine violations. So it would not be reasonable to suppose in the present case that the event is a miracle.

Coleman considers an objection: the foregoing rests on a dogmatic rejection of supernatural causation. If one assumes that God exists, that he could intervene in nature, and that the striking event under discussion is the type of event that it is appropriate for God to cause, then it would be reasonable to conclude that a miracle had occurred. Coleman replies that this line of defence is no more reasonable than would be similar defences of fanciful hypotheses involving alien life-forms, demons, fairies, *etc.*

Notice that PRL plays no role in Coleman's argument. At one point she does say:

> Applying Hume's principle of relative likelihood, 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.[9]

But this is confused. At this point in Coleman's argument we have been invited to suppose that the words of the Bible were indeed spelled out in the clouds, and to consider whether this event was miraculous. The testimony completed its job when it persuaded us that the words of the Bible were spelled out in the clouds. The testimony need not — let us stipulate that it did not — contain as part of its **content** that the event involved a violation of a law of nature. We are now asking: which is more likely, that the event described violated a law of nature or that it did not? The question is to be resolved, not by any further weighing of the testimony, but by applying theoretical considerations — for example, about the best explanation of the event. PRL has been left behind.

Some writers confront the believer in miracles with a dilemma: **either** theoretical considerations entitle one to be confident that if the event occurred then it involved a violation of a law of nature, in which case testimony could not entitle one to be confident that the event did occur, **or else** testimony entitles one to be confident that the event occurred, in which case theoretical considerations do not entitle one to be confident that the event involved a violation of a law of nature. But this is not Coleman's procedure. She does not offer the first horn of the dilemma. That is, she does not admit that theoretical considerations could ever entitle one to be confident that if an event satisfying a certain description occurred then the event violated a law of nature — except perhaps for trivial examples in which the description **entails** a violation.

Let us now move on from exposition to evaluation of Coleman's argument. It is true, as Coleman says, that if the words of the Bible were spelled out in the clouds the event would be **consistent** with many alternative hypotheses not involving miracles. In a weak sense of "could," then, we **could** always reject an account in terms of the miraculous; but Coleman fails to explain why we should always do so. Why will it never be the case that an account in terms of the miraculous is superior, in that it has higher prior probability, is less ***ad hoc***, *etc.*?

Here is one way of sharpening the challenge for Coleman. Discussion of miracles involves a distinction between events explainable — that is, capable of **adequate** explanation, in accordance with some criterion of adequacy — in terms of (deterministic or non-deterministic) laws of nature, and events not so explainable, and a distinction between events whose occurrence would violate laws of

nature and events whose occurrence would not violate laws of nature.[10] (These two distinctions may not coincide.) Now further distinctions are possible within these two. We can contrast events explainable in terms of laws of kind K with events not so explainable. We can contrast events whose occurrence would violate a law of kind K with events whose occurrence would not do so. The mere fact that we cannot see how to explain an event in terms of laws of kind K does not prove that the event is in principle inexplicable in terms of laws of kind K. Past experience shows that frequently what at one time were considered to be violations of laws of kind K — for example, events involving causal powers whose very existence, or at least operation in this context, was precluded by laws of kind K — are found at some later time not to be so. Nevertheless we are sometimes justified in saying (with a fair degree of confidence, accompanied by background reservations about our fallibility) that here is an effect that cannot be explained in terms of laws of kind K, or an effect involving causal powers whose existence is precluded by laws of kind K. ("Cannot" here means "cannot without grotesque and *ad hoc* manoeuvres.") For example, at one time kind K might have been **mechanics**, and the effect one that led us to postulate the existence of electromagnetic powers not reducible to the mechanical powers of objects.

How then can Coleman reach a universal negative conclusion with respect to the justification of hypotheses involving violations of laws of nature? After all, she does not want to invoke the premise that all explanations of particular matters of fact must be in terms of laws of nature, or the premise that the only causal powers are natural ones. Maybe **Hume** would do so, but that is another matter. Coleman is defending a broadly Humean position on miracles, but shows few signs of wanting to commit herself to Hume's metaphysics and epistemology of laws of nature and causation.[11]

Hume, in the *Enquiry* Section XI, argued that to the extent that we try to establish religion upon the principles of reason, rather than simply relying on tradition, we have no grounds for ascribing to God qualities which would enable us to predict phenomena not already predictable from the experienced course of events. The contrary supposition rests on analogies between reasonable human purposes and actions and supposed divine purposes and actions; but reason cannot establish sufficiently substantial points of similarity between human beings and God to enable such arguments from analogy to succeed. If Hume is correct here, then Coleman might argue that a hypothesis involving the miraculous will never provide a sufficiently good explanation to justify our accepting it. For example, if the words of the Bible were spelled out in the clouds then the hypothesis that God brought about the event miraculously — that is, by direct primary

causation wholly or partially unmediated by secondary causes — would not have a higher prior probability, or be less ***ad hoc***, than alternative hypotheses concerning Martians, demons or fairies.

Still, if Coleman wants to adopt this strategy then she has a big task ahead of her, since it is far from clear that Hume is correct. Let E assert the existence of a particular observable phenomenon; let G assert that there exists a God with certain abilities and purposes; let K be our background knowledge; let A assert that there exist Martians or demons or fairies with such-and-such abilities and purposes. Then the thesis Coleman will be committed to is a strong one: for all such E and G, if P(E/G&K) > P(E/K) then P(G/K) is low and if P(E/A&K) > P(E/K) then P(G/K) is not substantially higher than P(A/K). The strength of the thesis is illustrated by the fact that very few of the atheists and agnostics I know hold it.

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1. Dorothy P. Coleman, "Hume, Miracles and Lotteries," *Hume Studies* 14.2 (November 1988): 328-46.
2. David Hume, *Enquiries Concerning the Human Understanding and Concerning the Principles of Morals*, ed. L. A. Selby-Bigge, 2nd ed. (Oxford, 1972), 109-31. Further references ("E") will be given in parentheses within the body of the text.
3. Robert Hambourger, "Belief in Miracles and Hume's Essay," *Nous* 14 (1980): 587-604.
4. Hambourger (above, n. 3), 590.
5. Coleman (above, n. 1), 333-4.
6. Coleman (above, n. 1), 334.
7. Coleman (above, n. 1), 336.
8. Bruce Langtry, "Miracles and Principles of Relative Likelihood," *International Journal for Philosophy of Religion* 18 (1985): 121-31; and Bruce Langtry, "Mackie on Miracles," *Australasian Journal of Philosophy* 66 (1988): 368-75.
9. Coleman (above, n. 1), 338-9.
10. Obviously we need a notion of violation which leaves it possible that there should be violations; hence the violating event must be logically consistent with the law it violates. Different accounts of the notion which observe this requirement are offered by R. Swinburne, *The Concept of Miracle* (Macmillan: 1970), chap. 3; and J. L. Mackie, *The Miracle of Theism* (Clarendon Press: 1982), chap. 1.
11. P. H. Nowell-Smith casts doubt on the possibility explanatory hypotheses involving the supernatural, and indeed on the viability

of the distinction between natural and supernatural. He challenges his opponent: "Let him consider the meaning of the word 'explanation' and let him ask himself whether this notion does not involve that of a law or hypothesis capable of predictive expansion. And then let him ask himself whether such an explanation would not be natural, in whatever terms it was couched, and how the notion of 'the supernatural' could play any part in it." Cf. P. H. Nowell-Smith, "Miracles," *Hibbert Journal* (1952). Reprinted in A. Flew and A. MacIntyre, eds., *New Essays in Philosophical Theology* (SCM Press: 1955). Flew makes a related point when he observes that our only way of determining the capacities and incapacities of Nature is to study what does in fact occur; so if we encounter people doing what we had previously thought beyond human power, we should not postulate supernatural intervention but rather revise our beliefs about what powers human beings have. Cf. A. Flew, *God and Philosophy* (Hutchinson: 1966), 145ff.