AN OVERLOOKED CONSEQUENCE OF SWINBURNE'S PROBABILISTIC THEOLOGY

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UDK 230.1 Swinburne

Introduction: Bayesianism in Philosophical Theology

Some scientific theories seem more, some seem less easily compatible with experiential data. This is a truism and belongs to the basic intuitions behind any scientific enterprise at all. Many people would also go one step further and accept a semantically richer thesis: some theories are strongly or weakly *confirmed* or *disconfirmed* by certain data. It has been a much–disputed question for centuries whether such spontaneous assumptions of backing–relations follow a unique logic, or if they *should* (at least ideally) follow it. This question is part of the more general issue regarding the logic of rational belief–formation and belief–revision in the light of ongoing experience. One tradition of answers — going back to the times of Pascal and Huygens — rests on the central idea that beliefs, degrees of assent and conviction etc. should in some way be represented by probabilities (perhaps without exact numeric values), and that belief–formation and –revision should hence be reconstructible by applications of the probability calculus. Let us call that tradition (following van Fraassen 1988, 153, Jeffrey 1992, 44f and others) "probabilism".

Since its beginnings, this tradition of probabilism has been ambigous. It could be taken as descriptive or normative: is it meant to provide an explanatory model for our factual way of thinking, especially a model for the connection between our theoretical cognizing and our practical deciding or evaluating, or is it rather a proposal for the logic that ideally rational subjects should obey if they think about theories and confirmation? Is, hence, the subjective and historical context of reasoning, belief–formation and belief–revision an important part of the model or should it be left out of consideration as far as possible?

As a first approximation, let us call a probabilistic approach in the theory of confirmation "Bayesian" if it answers to these questions roughly in the following way: (1) Confirmation is the increase of the subjective probability assigned to a hypothesis. (2) Confirmation is dependent upon the hypothesis, on a previous estimate of its probability and on newly–gained experiential material. The "new" probability of the hypothesis is understood as a conditional probability given the new data; this is the core idea of "Bayesian conditionalisation" (the structure of which has however been interpreted in various ways). (3) The probabilities involved are subjective or personal, and the principal criterion for excluding irrational probability assignments is the so–called Dutch–book criterion (if my probability assignments were interpreted as betting rates and if I were forced to bet on my beliefs, they must not allow a result where I always lose no matter how the facts develop). Within the constraints of this rather weak criterion, however, a broad variety of probability assignments is possible. That is why Bayesians hold that (4) in the long run, as experience accumulates, the probability judgements of different observers will converge, no matter how different they might have been in the beginning on the background of their different personal and historical context (this is the so–called "washing out of prior probabilities"); (5) The mathematical structure for handling these probabilities is the classical calculus of probabilities, especially several versions of the so–called "Bayes' theorem".

Richard Swinburne's *The Existence of God* (Oxford: Clarendon Press 1979, rev. ed. 1991) is an attempt to apply this Bayesian method (or at least parts of it) to the question of God's existence. Beyond any doubt and despite of its contestable points, it is one of the most remarkable works in recent analytical philosophical theology, and it has stimulated a lot of research in this field. God's existence is treated like a hypothesis, and by evaluating the impact of various pieces of evidence a cumulative case for this hypothesis is established. The result of Swinburne's confirmation–theoretical approach is that in the light of several pieces of evidence the probability for the existence of God is a little larger than 0. 5. This result could seem attractive, especially to the believer: on this account it is neither irrational to believe in God, nor have we succumbed to a theological rationalism that leaves no scope for personal faith. The scope of faith is filling up the gap to a personal subjective probability of 1.

In this paper, however, I want to point out that Swinburne could have proved much more: the existence of God has a probability of almost 1, if we really take Swinburne's Bayesianism and his way of designing theistic arguments seriously. However, it is not my claim that this stronger conclusion should be welcomed by theist philosophers; it should rather be taken as an indication that something is wrong in the very setup of the argument.

The essence of Swinburne's overall argument can be summed up in a semi–formalized, non–technical way.

(1) Experiences and reports of experience are trustworthy if their content is not highly improbable on other grounds (Principle of Credulity / Testimony).

(2) Some religious believers believe themselves to have made and/or report religious experiences which would, if veridical, imply the existence of God.

(3) Hence, (reports of) religious experiences are trustworthy if the existence of God is not highly improbable on other grounds (from (1) and (2)).

(4) Six general features of the world are most easily explained by the existence of God, and hence they are (weak) evidence for the existence of God: (a) the existence of a complex physical universe; (b) order in the universe; (c) the existence of conscious beings; (d) the matching between human and animal needs and the features of the environment; (e) (perhaps) the occurence of miracles; (f) the fine–tuning of basic natural constants. The existence and amount of evil in the world, on the other hand, does not constitute decisive evidence against God's existence, since a God (in the traditional theistic conception) could have good reasons to create a world similar to ours.

(5) Hence, God's existence is not highly improbable, but has an (although small) probability (from (4)).

(6) Hence, (reports of) religious experience are trustworthy, i. e. God's existence is more probable than his non–existence (from (3) and (5)). This means that its probability is somewhere between 0, 5 and 1; the gap to 1 is the scope for personal faith.

All steps in this argument proceed by elementary sentential logic, drawing also on some elementary definitions from the theory of epistemic probability. There is much to be said about any of the premises, but I shall leave that aside, and concentrate on two points: the justification for thesis (4) and the step from (4) to (5). These are the points where confirmation theory, formally explicated by Bayes' theorem, comes into play (see Swinburne 1973 and 1991, ch. 3–6, 14). According to Swinburne, the argument is in no way a proof in the sense of a logically cogent argument with evidently true premises, but is offered only as a "best explanation" for some features of the world. As such, it is an explanation which is still open for personal assent or non–assent — a case quite similar to peripheral and uncertain areas of science.

Notice further that the function of the six features mentioned in thesis (4) is only to make the hypothesis of theism not–highly–improbable (see (5)). Hence, the major burden of proof rests on religious experience and the principles of credulity and testimony.

In the following, I sketch two arguments to the conclusion that — contrary to Swinburne — a slightly different confirmation–theoretical use of those six features could yield a much stronger conclusion.

But before going into details, let me shortly address a possible counter–argument which could undercut my interpretation of Swinburne's argument from the beginning. I presuppose that Swinburne's project can be classified as an application (of course, however, an atypical application) of Bayesianism, and I am not alone in that: John Earman, e. g., in his extensive and thorough critical study of Bayesian Confirmation Theory, obviously classifies Swinburne right in the same way (Earman 1992, 154). I mention this because Swinburne himself would most probably reject the labelling as Bayesian, and especially insist that his probabilities are not to be interpreted as personalistic or subjective, but rather as objective. For myself, I do not see how some of the probabilities involved admit of an objectivist reading (e. g. the prior probability that a God exists, that he will create a universe of roughly our kind, or the probability that the universe exists without a God). I share the traditional idea that objective probabilities have to do with relative frequencies, and hence with events which are (at least in principle) multiple and repeatable. Universes as by definition unique things (I share Swinburne's lack of sympathy for speculations about multiple universes) and their creators do not seem a very promising field for objective probabilities.

The first argument: Some tentative calculations

Swinburne clearly states that his usage of probabilities is comparative, not quantitative: for the sake of his argument, some significant probability *gaps* between the terms involved in Bayes' theorem are sufficient, and there is no necessity of assigning exact numerical values to any of them (Swinburne 1991, 17). In the following, I explore what happens if we assign arbitrary numbers to the terms in Swinburne's calculation — numbers which I hope seem reasonable and are fair Swinburne's intentions. For the sake of brevity, I simply take over a theorem used in Swinburne 1991, 289 without adressing the question of its justification (it follows quite straightly from the simplest form of Bayes' theorem[1]). Let *P(x/y)* be dependent probabilities, *h* the hypothesis in question (i. e. theism), *e* the evidence offered and *k* our general background knowledge, then

$$P(h/e \wedge k) = \frac{P(e/h \wedge k) \times P(h/k)}{\{P(e/h \wedge k) \times P(h/k)\} + P(e \wedge \neg h/k)}$$

1 The proof runs as follows:

1.	$P(h/e \wedge k) = P(e/h \wedge k) \times P(h/k) / P(e/k)$	Bayes' Theorem
2.	$P(e/k) = P(e \wedge h/k) + P(e \wedge \neg h/k)$	Elimination Rule
3.	$P(e \wedge h/k) = P(e/h \wedge k) \times P(h/k)$	Conjunction Axiom
4.	$P(h/e \wedge k) = P(e/h\ k) \times P(h/k) / P(e/h \wedge k) \times P(h/k) + P(e \wedge \neg h/k)$	From 1, 2, 3

According to Swinburne's presuppositions, $P(e \wedge \neg h/k)$ is by far the smallest probability in the fraction on the right side, whereas $P(h/k)$ and $P(e/h \wedge k)$ are a lot greater: given our general background knowledge, it is extremely improbable that, for example, a complex universe exists without a God. The probability of God's existence, and the existence of a complex universe given God's existence, are much greater. Further, we notice that the numerator and the first term of the sum in the denominator are equal [$P(e/h \wedge k) \times P(h/k)$]. Substituting Y for this product, we get the following theorem:

$$P(h/e \wedge k) = \frac{Y}{Y + P(e \wedge \neg h / k)}$$

Swinburne himself notes that $P(h/e \wedge k) = 1/2$, if Y and $P(e \wedge \neg h/k)$ are equal. All in all, however, it is obvious that Swinburne regards $P(e \wedge \neg h/k)$ as very, very small. But of course, with very low values for $P(e \wedge \neg h/k)$, the numeric value of the fraction rapidly converges towards 1, as can be seen in table 1 (for the sake of simplicity, I assume $P(h/k)$ and $P(e/h \wedge k)$ to be equally high at 0,01, at least for the moment):

$P(h/k)$	$P(e / h \wedge k)$	$P(e / h \wedge \neg k)$	$P(h / e \wedge k)$
0,01	0,01	0,0001	0,5
0,01	0,01	0,00008	0,555...
0,01	0,01	0,00005	0,666...
0,01	0,01	0,00004	0,7692307...
0,01	0,01	0,00001	0,909090...
0,01	0,01	0,000001	0,99009900...
0,01	0,01	0,0000001	0,999000999000...
0,01	0,01	0,00000001	0,9999000099990000...

table 1

So if we share Swinburne's intuition that $P(e \wedge \neg h/k)$ ist extremely small, then his account allows a result much more in favour of theism. The smaller we take $P(e \wedge \neg h/k)$ to be, the closer we get to a probability of 1 for theism in the light of the evidence.

Someone might object that 0, 01 for $P(h/k)$ is too high an assumption, and that this brings in a bias in favour of theism from the beginning. However, things do not change in principle if we reduce $P(h/k)$, say, to 0,0001; the rapid convergence simply begins a little later (table 2). This does not really matter since $P(e \wedge \neg h/k)$ is *ex hypothesi* always very small, at least much smaller than

P(h/k) and *P(e/h ∧ k)*; hence the relevant lines of the following table will be the last ones rather than the earlier ones:

P(h/k)	*P(e / h ∧ k)*	*P(e / h ∧ ¬k)*	*P(h / e ∧ k)*
0,0001	0,01	0,0001	0,0099009...
0,0001	0,01	0,00008	0,0123456...
0,0001	0,01	0,00005	0,0196078...
0,0001	0,01	0,00004	0,0322580...
0,0001	0,01	0,00001	0,0909090...
0,0001	0,01	0,000001	0,5
0,0001	0,01	0,0000001	0,9090909...
0,0001	0,01	0,00000001	0,99009900...

table 2

To sum up this first, rather tentative argument: If we take the correctness of Swinburne's formalism for granted, and if we take seriously his assertions about significant probability gaps, then the existence of God rather seems to have a probability approximating to 1 — and not only around 0,5, as Swinburne presumes.

The second argument: Taking Bayesianism seriously

However, this first argument might not seem convincing to everyone. Too much seems to depend on the assignations of the probabilities, and perhaps my assignations are still unplausible. The following second argument proceeds from a slight adaption of Swinburne's way of argumentation; an adaptation, however, which Swinburne should presumably accept.

Swinburne combines all parts of evidence (i. e. the six features mentioned above) and makes use of them cumulatively in steps (4) and (5). It is worth noting, however, that the last–mentioned piece of evidence (the "fine–tuning" in basic natural constants) was used only in the second edition of *The Existence of God*; but interestingly, the new evidence from the "fine–tuning" of the universe was not exploited in the Bayesian style, and nothing changed in Swinburne's final judgement about the epistemic probability of theism between the first and the second edition. This is surprising, because a temporal aspect, the successive learning from new evidence, is a decisive feature of

Bayesian Confirmation theory (and, by the way, learning from "old evidence" is a crucial problem for it[2]*). The temporal aspect is explicated by the*

$$\text{Conditionalisation Rule: } P(h/e \wedge k)_{old} = P(h/k)_{new}.,$$

i. e. the "new" prior probability of a hypothesis, which we use for future judgements about its probability in the light of new evidence, is its "old" posterior probability, i. e. its posterior probability in the light of the last–gained piece of evidence, and so on. And the previously used parts of the evidence become parts of the background knowledge for the next step of belief–revision. In the following paragraphs, I will explore what happens if we take this temporal aspect of Bayesianism seriously and apply it to Swinburne's argumentation.

The idea is to divide Swinburne's bundle of evidence, regard it as having been gained in temporal succession (let us call them e_1 to e_7), and to interpret the question of the existence of God as a question of Bayesian Confirmation. This is particularly easy here, since in Swinburne's argument, the content of the hypothesis h in question is clearly defined from the beginning, and it remains unchanged by new evidence throughout the argument (unlike in many cases of actual science, and also unlike in classical theistic proofs, as for instance Aquinas's *Five Ways,* where the properties of God [as "unmoved mover" etc.] are not defined from the beginning, but introduced in the course of the argument).

A comparison with criminal investigations (akin to the examples often used by Swinburne himself) might serve as an intuitively plausible, non–technical preparation to the argument. Suppose you have to single out a criminal among a huge number of people, say, the world–population. And suppose there are six, admittedly very weak, pieces of evidence which point to the guilt of a certain person under suspicion; say, his blood–group, the type of his car, his hair–colour and three other matching features. And perhaps we could count the evidence from testimony (corresponding to religious experience in Swinburne's account) as a (somewhat stronger) seventh piece of evidence. Using those seven pieces of weak evidence in seven subsequent steps of re–calculating the posterior probabilities of h — and still under the assumption that $P(e \wedge \neg h/k)$ is extremely small –, it seems plausible that we arrive at a much higher probability $P(h/e_1 \wedge ... \wedge e_7 \wedge k)$ than appr. 0,5. As seven independent, however weak, pieces of evidence usually make up quite a strong case against a suspicious person, they would make a very strong case for theism — perhaps too strong. In the following table, the probabilities of the "evi-

2 On the "old evidence–problem" see Earman 1992, ch. 5, Howson & Urbach 19932, ch. 15 g, and Löffler 1999.

dence without God" $P(e_{1-7} \wedge \neg h/k)$ are arbitrarily assumed as 0,0000001, much lower than the likelihoods of the evidence, given that God exists $P(e_{1-7} / h \wedge k)$, which are modestly assumed to be 0,00001. The prior probability of God's existence is (also quite modestly) assumed to be 0,00001.[3]

after the...	$P(h/k)$	$P(e_{1-7} / h \wedge k)$	$P(e_{1-7} / h \wedge \neg k)$	$P(h / e_{1-7} \wedge k)$
1st piece of evid.	0,00001	0,00001	0,0000001	0,000999000999...
2nd piece of evid.	0,000999000999...	0,00001	0,0000001	0,090826521344...
3rd piece of evid.	0,090826521344...	0,00001	0,0000001	0,900819745968...
4th piece of evid.	0,900819745968...	0,00001	0,0000001	0,989020879219...
5th piece of evid.	0,989020879210...	0,00001	0,0000001	0,989990199196...
6th piece of evid.	0,989990199196...	0,00001	0,0000001	0,989999901990...
7th piece of evid.	0,989999901990...	0,00001	0,0000001	0,989999999019...

table 3

We get the same result as in the first argument: the probability of God's existence quickly converges towards 1.[4]

Of course, an objection seems easily at hand, and we shall briefly address it. Someone might object that the "later" pieces of evidence are not so interesting and surprising any more; and the argument could run as follows. Suppose I have already used the following pieces of evidence for my argument: the existence of a complex, ordered universe and the existence of conscious beings. Then, someone might argue, the other pieces of evidence are not so interesting any more. Given an ordered universe with conscious beings in it (it might be created by God or just be there by chance), we could also expect a matching in their needs and their environment, and we could also expect a fine–tuning in the basic natural constants. Otherwise, we seem to commit the fallacy of treating dependent evidence as if it were independent evidence. Technically, this means that $P(e \wedge \neg h/k)$ rises from 0,0000001 to a much higher probability after the first steps — hence the denominator strongly increases, and in effect the probability of God's existence might not end close to 1.

3 I skip Swinburne's detailed argument that the existence and amount of evil is no crucial argument against the existence of God or the probability that he might create a universe like ours.

4 The convergence might even be quicker than in this simplified model, for the following reason: As $P(h/k)$ increases with every step, $P(\neg h/k)$ must accordingly decrease. Hence $P(e_{1-7} \wedge \neg h/k)$ must also decrease with every step. For the sake of simplicity, however, $P(e_{1-7} \wedge \neg h/k)$ is assumed to be at 0,0000001 throughout the argument.

I have two counter–arguments against this objection, a conceptual one and a technical one. The conceptual one runs as follows: admittedly, we spontaneously tend to associate, e. g., the existence of conscious beings with certain forms of order in the universe, a fine–tuning in its basic constants, etc. The reason is simply that we are so familiar with our factual world in which all this is the case, and that it needs a good deal of intellectual effort to conceive a world where it is otherwise. However, there is no conceptual tie between those features of the world, and one can imagine worlds where some of these features are absent. Hence we can rightly treat our six or seven pieces of evidence as independent pieces.

This argument might not be convincing for everybody. So here is the second, more technical argument. If there should really exist a conceptual, or at least a probabilistic tie between the various pieces of evidence, then this tie exists no matter how the world came into existence. For example: If it was God who created the ordered universe with conscious beings, then it is also more likely that he created a fine–tuning in the universe as well. Hence a rise of the likelihood of the "later" pieces of evidence does not only influence the denominator of Swinburne's theorem, it also rises $P(e / h \wedge k)$, and this term appears in the numerator and in the denominator. Hence the increase in $P(e \wedge \neg h/k)$ in the denominator is partly neutralized by the increase of $P(e/h \wedge k)$ in the numerator. The proof for that is left to the reader.

What is wrong with Swinburne's account?

If at least one of my two arguments presented in chapters 2 and 3 is sound, then Swinburne's premises yield a much stronger conclusion than the one for which he argues: the subjective, epistemic probability of the existence of God in the light of the evidence should be close to 1, and not only around 0,5 or even weaker. Should theistically–minded philosophers (like myself) be happy with this result? Is this the long–awaited absolutely cogent argument for God's existence? I do not think so. An immediate suspicion is that some of the premises, or perhaps the way in which the argument is set up, are problematic. In some concluding remarks, I want to substantiate this suspicion.

A first, general worry could focus on the sources of the epistemic probabilities which are in use here. What could be plausible criteria to gauge the epistemic probabilities here involved, say, the probability of *e* given (*h* and *k*)? Or of *e* given (*k* but *h*)? What is a reasonable epistemic probability, on the assumption that God exists, that he will also create conscious beings? Or a fine–tuned universe like ours rather than a different, or a chaotic one? And what is a reasonable epistemic probability that a universe like ours came into being just by chance? All this seems extremely hard to judge. We all know the *bon mot* that forecast is a difficult thing, especially regarding to the future; we can add that retrodiction also becomes extremely intricate once it refers to happenings before the beginning of the universe. The only way out seems to presuppose a great deal of knowledge about God, and to presuppose a strongly realist conception of aesthetic, moral, and other values, according to which not only can God's actions be partially predicted, but even the probability of God's existence itself can be judged. Swinburne's book is indeed full of remarks suggesting such claims. In particular, his defence of an aprioristic conception of simplicity deserves special attention. As Swinburne himself (1991, 56) notes, *simplex sigillum veri* is a continuing motif in his book, and simplicity considerations are the primary criterion according to which all the probabilities (including the apriori probability of God's existence) are judged.

One quickly comes to suspect that a lot of tacit background assumptions are significantly influencing the probability judgements. And these assumptions might vary between different world–views. A person with a theistic world–view might perhaps assign her epistemic probabilities similarly to Swinburne. Others might dissent, and, since those probabilities are subjective, they might well be within their epistemic rights in doing so. As we saw, the axis of the argument is the probability gap between $P(e / h \wedge k)$ and $P(h/k)$ on the one hand and $P(e \wedge \neg h/k)$ on the other, and Swinburne's judgement about this gap. And others, provided they do not follow Swinburne's objectivistic criteria, might judge here otherwise. Within the framework of a certain world–view, it is not astonishing that these probability gaps hold and consequently, that God's existence gets a probability of almost 1.

To specify this somewhat more: the traditional proofs for God's existence rested on a couple of principles which can — by and large — be classified as *synthetic apriori*. The best–known of them is the metaphysical principle of causality (usually formulated as "every contingent being, if it really exists, presupposes an adequate cause"). Swinburne's reservations against such principles were the principal factor leading him to reject traditional philosophical theology and to recast it in a probabilistic form. But via his simplicity judgements and other background assumptions, the contents of these principles of traditional philosophical theology come in again by the backdoor. For example, judgements like "$P(e/h \wedge k)$ is much bigger than $P(e/\neg h \wedge k)$" or "$P(h/ k)$ is much bigger than $P(e/\neg h \wedge k)$" contain a lot of such principles in disguise, primarily under the label of "simplicity".

That different people might posit their simplicity judgements differently seems to point up a significant limitation for a probabilistic philosophical theology in Swinburne's style. On the other hand, the fact that traditional ideas like the principle of causality covertly reappear in Swinburne might be read as an indication of their abiding relevance, and perhaps even indispensability for a satisfying philosophy of religion with metaphysical ambitions. But this would be another issue.[5]

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5 Extended and revised version of a paper presented at the 3rd European Congress of Analytical Philosophy, Maribor / Slovenia, June 29 — July 3, 1999. I wish to thank Tomis Kapitan, Jordan Howard Sobel, Luc Bovens, Philip Endean and Otto Muck for a couple of helpful comments.