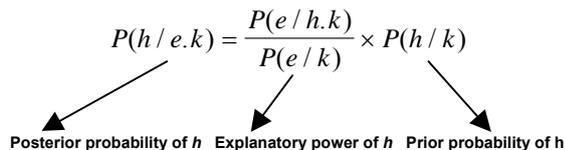


Probability Theories and the Justification of Theism

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In the present paper I intend to analyse, criticise and suggest an alternative to Richard Swinburne's use of Bayes's theorem to justify the belief that there is a God. Swinburne's contribution here lies in the scope of his project and the interpretation he adopts for Bayes's formula, a very important theorem of the probability calculus, which reads as follows:

$$P(h / e, k) = \frac{P(e / h, k)}{P(e / k)} \times P(h / k)$$


Posterior probability of h Explanatory power of h Prior probability of h

h is the hypothesis under assessment, e is the set of evidence in view of which the hypothesis is assessed and k is background knowledge.

Swinburne uses the framework provided by the theorem to reconstruct the main arguments of natural theology in an inductive case in favour of theism aimed to academic and scientific circles, which are the most sceptical as regards religious belief.

1. Logical Bayesianism applied to Theism

For Swinburne, the Bayesian formula is the formal expression of scientific inductive reasoning in the assessment of how much probable a hypothesis is in view of relevant evidence. In his application of Bayes's theorem to justify theistic belief, Swinburne aims to show that theism is confirmed by some relevant pieces of evidence. In other words, he wants to show that the existence of God is more probable than not (i.e. has a probability higher than 0.5) in view of evidence such as the existence of the universe, order in this universe, the providential character of this order, and the occurrence of conscious beings in this providential universe. In view of all these pieces of evidence, Swinburne holds that: 1) their expectedness or probability of happening anyway ($P(e_i/k)$) is very low, and 2) that they are all well explained in view of the hypothesis of theism, that is, $P(e_i/h,k) > P(e_i/k)$. In fact, the decisive piece of evidence in Swinburne's cumulative case is religious experience, which becomes the argument that tips the balance in favour of theism (see Swinburne 1991, 291).

However, the adaptation of the natural theology arguments to Bayes's formula is not the only part of Swinburne's probabilistic approach to the justification of theism. In addition to the likelihood calculation, that is, the proportion between how much evidence e gets explained by hypothesis h and the expectedness of e ($P(e/h,k)/P(e/k)$), the Bayesian interpretation of inductive reasoning postulates a consideration of the prior probability of h .

The assignment of prior probabilities is the most controversial part of Bayesianism as an interpretation of scientific reasoning. In this respect, there are two main positions in the Bayesian field. There are those who postulate that the estimate of priors is a matter of universal and neutral criteria that stem from logical considerations only. In

addition, there are those who hold that prior probabilities are a matter of subjective opinion, i.e. just a personal initial degree of belief in a certain hypothesis. For the subjectivists, the only constraints on the assignment of prior probability values would be coherence, that is, the conformity to the axioms of probability calculus (see De Finetti 1989).

For Swinburne the subjective theory of Bayesian probability is not able to provide an adequate account of confirmation of theories by evidence in scientific contexts (see Swinburne 1973 24). For him, we should select a theory prior to the consideration of evidence, which amounts to estimating its prior as higher than its rivals', using three objective parameters: fitness with background knowledge, scope and simplicity, which is the most significant of them.

For Swinburne, the principle that, all being equal, simplicity indicates that a hypothesis is true is a synthetic *a priori* truth, that is, it is a condition for theoretical scientific activity being a rational enterprise (Swinburne 1997, 56). In other words, our normal conception of science is that this is an activity guided by rational criteria for selecting hypotheses, not by random procedures without any ordering principles. Thus, where the rival theories we are discussing refer to a field of research with no neighbouring area and where they cannot be distinguished in terms of scope, we need to resort to the principle of simplicity, otherwise our theory selection will be irrational.

Unfortunately there are strong reasons for believing that Swinburne's attempt to use simplicity as a directly applicable, objective and impersonal criterion for ascribing a prior probability to theism fails. For the sake of brevity, I will only outline them here:

The concept of simplicity has too many different meanings (see Prevost 1990, 50);

The application of this concept in theory choice is not direct, but requires judgement based on the shared knowledge of the research community (see Sober 1988, 69 and Salmon 1998, 563);

There is no clear interpretation of the principle of simplicity in Bayes's theorem if we follow Swinburne's account;

The reduction of simplicity to quantitative and mathematical terms resorts to a concept of infinite that conflicts with the theological meaning of it (see Le Blanc 1993, 62);

It is at least highly controversial that theism is a simple hypothesis (see Fawkes & Smithe 1996);

The idea that we need simplicity to adjudicate among an infinite number of hypothesis is either contrary to the probability calculus or too artificial to account for scientific confirmation.

In addition, it is highly polemical to say that a hypothesis is always *a priori* more probable than another because of its simplicity. Indeed, a too simple a theory is frequently considered implausible even before we take into account the phenomena it aims to explain. Instead of a linear gradation for evaluating a hypothesis in view of simplicity so that the simplest it is the most probable in principle, it

seems more correct to take simplicity as medium optimum above which we have complex theories and below which we have simplistic ones. In this case, neither the complex nor the simplistic should be *a priori* more probable than the simple one. If so, however, the application of the criterion for estimating prior probabilities is far from straightforward. Instead, it requires familiarity with the prevailing conception about what is the optimum of simplicity in the research area we are referring to in order to sustain a trained judgement. So, we can even agree with Swinburne that simplicity is not a sheer methodological or pragmatic criterion, but that it has something to do with theory truth-value. However, the definition of what simplicity amounts to and the application of this parameter for assessing the plausibility of a hypothesis depend on the background knowledge shared by a given community of researchers.

2. Intersubjective Probability and the Justification of Theism

The theory of probability that is behind Swinburne's approach takes probability as a logical relationship between propositions, which is regulated by a *a priori* correct inductive criteria valid in all contexts. The problem with this view is that it cannot live up to its intention, that is, the application and definition of these criteria end up being dependent on judgement. However, Swinburne and the proponents of the logical theory are right in not accepting the subjective theory of probability as an account of scientific inference, since theory choice in this context is not a matter of pure personal taste.

The view I intend to defend is based on an intermediate between the logical and the subjective theories of probability. An account of this view is the intersubjective theory of probability proposed by Donald Gillies. According to him, intersubjective probability is an extension of the notion of subjective probability, that is, it is defined by the degree of belief shared by a group of individuals in a proposition p . This degree of belief is defined by how much money the group is prepared to bet in p in a psychological experiment. The basic requirement is that the group be coherent in the probability assignments it proposes, i.e. that it complies with the axioms of probability calculus, otherwise, following from the Dutch book argument, it will lose money for sure. In addition, each individual of the group has to follow the group view in the initial degree of belief attributed to the proposition in question (see Gillies 1991, 517).

Gillies claims there are two requirements for this theory to work. The first one is the existence of a common purpose that unifies the group so that it needs to have a coherent, shared view of the probability of the hypothesis in question. The second one is that the individuals can be informed about the degrees of belief shared by the group and correct their prior probabilities accordingly. As a result, the intersubjective theory of probability can account for the fact that the probabilities ascribed to hypotheses in scientific contexts are neither a matter of individual taste nor stem from a single rational degree of belief on which all rational human beings should agree. Instead, the high degree of consensus in the scientific community should be interpreted as intersubjective probabilities, that is, common beliefs shared by a group with the common purpose of putting forward true theories about matters of fact and relations of concepts. It is on the basis of their shared background knowledge that scientists agree as to whether a given hypothesis is confirmed by a certain piece of evidence.

The application of this theory of probability to the epistemology of theism can be outlined as follows. First, we need to define the research community we are referring to, i.e. an account of who is involved in the discussion about the rational justification of the belief in God. It seems reasonable to circumscribe it to people interested in reconciling religious belief and the tenants of philosophic and scientific argumentative reason. In other words, Swinburne is right in addressing the academic and scientific circles with his religious epistemology, because it is in this type of group that the question about the justification of religious belief arises. Particularly, the question is posed to those who have belonged to a religious community since their early years but who also became part of a scientific, academic or any intellectually sophisticated group later on. For those religious believers who do not participate in the environment defined by argumentative reason the problem of the rationality of theism is much less pressing if it exists at all.

If the question of justification of theism is a problem particularly posed to those who both have a religious upbringing and participate in the environment dominated by argumentative reason, then their common purpose can be to evaluate the extent to which the belief that there is a God meets the requirements of intellectual respectability given both their religious faith based on a certain experience of God and the constraints posed by reason. In Bayesian terms, this will mean that the prior probability they will ascribe to the hypothesis of theism will be higher than the one attributed by someone who does not have a religious background. Yet they also have to consider in this prior probability judgement some elements that count against this initial plausibility such as the fact that religious experience is fundamentally ambiguous and can be described in different ways, and that there is disagreement about the matter, for example (see McKim 2001 252).

This way of considering the particular religious background of the theist who engages in the discussion of God's existence has the advantage of being more realistic than the one supposed by Swinburne. There is no neutral starting point in this matter, as there is no neutral starting point in scientific reasoning. From a Bayesian perspective there is no problem in starting to participate in a debate from a determinate point of view as long as we are coherent in our degrees of belief, and are set to update our initial probabilities in light of evidence. An interesting phenomenon Bayes's theorem enables us to see is that to the extent that evidence is considered, the importance of our determinations of prior probability gradually decreases. In the limit, given certain conditions, the consideration of evidence will lead to a convergence of opinion where one of the alternatives will reach probability one, as the others tend to zero.

The crucial element in this discussion will be the extent to which the opponent parts in this debate share a common background knowledge that is sufficient to make a difference to opinion convergence. The fact that both contending groups share the same heuristic values and reasoning standards prescribed by intellectually sophisticated circles is a reason to believe that this is possible in principle.

In sum, my suggestion for using Bayesianism in the discussion of the justification of theistic belief focuses on the idea that Bayes's theorem expresses two very distinct moments in inductive reasoning. First, the prior probability of theism is better thought of in terms of a particular degree of belief shared by a group and based on their specific background knowledge. Second, the likelihood calculations, where the particularity of the priors tends to vanish given that here we will consider public evidence and evaluate their confirmatory force for the hypothesis according to criteria prescribed by background knowledge common to the contending groups.

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