Analysis **55** (1995), pp. 247-51

On The Argument from Quantum Cosmology Against Theism

Ned Markosian
Western Washington University
ned.markosian@wwu.edu

In a recent *Analysis* article, Quentin Smith argues that classical theism is inconsistent with certain consequences of Stephen Hawking's quantum cosmology.[1] Although I am not a theist, it seems to me that Smith's argument fails to establish its conclusion. The purpose of this paper is to show what is wrong with Smith's argument.

According to Smith, Hawking's cosmological theory includes what Smith calls "Hawking's wave function law." Hawking's wave function law (hereafter, "HL") apparently has, among its consequences, the following claim.

(1) The unconditional probability that a universe like this one - i.e., a universe with the metric h_{ij} and matter field Φ - should begin to exist is 95%.[2]

Smith then argues that the theist who accepts HL must also accept that the following sentence was once true.[3]

(2) God wills that Hawking's wave function law obtains and that a universe begin to exist with the metric h_{ij} and matter field Φ.

For if God did not will that HL obtains, then HL would not obtain; and similarly, if God did not will that a universe begin to exist with the metric h_{ij} and matter field Φ, then such a universe

---

1 For Smith's argument see [3]. For presentations of the relevant views of Hawking, see [1] and [2].

2 [3], pp. 236-237. Apparently Φ represents the amount of matter contained in the initial state of the actual universe, and h_{ij} represents the sort of curvature possessed by the three-dimensional space of this state.

3 In Smith's paper this sentence is numbered (4) rather than (2).

would not begin to exist. Moreover, Smith argues that (2) is implicitly self-contradictory. He takes (2) to be the conjunction of these sentences:

(2a) God wills that Hawking's wave function law obtains.
(2b) God wills that a universe begin to exist with the metric h_{ij} and matter field Φ.

And he thinks that (2a) and (2b) respectively entail the following. (Let 'U' stand for 'a universe begins to exist with the metric h_{ij} and matter field Φ'.)

(2a*) P(U) = 95%.
(2b*) P(U) = 100%.

A first point to make about Smith's argument is that it applies equally well to any indeterministic theory. Here is an example. Consider the theory of genetic indeterminism (GI), which says that a dog's color is not completely determined by facts about the dog's DNA and its prenatal environment. Suppose that GI plus the relevant facts about Casper's origins entailed that there was a 95% probability that Casper would be white. Suppose that as it turns out Casper is white. Then the theist who accepts GI will apparently have to say that God willed both that GI and the relevant facts about Casper's origins would be true and that Casper would be white. Thus apparently such a theist is committed to accepting that this sentence was once true:

(3) God wills that GI and the relevant facts about Casper's origins obtain and that Casper be white.

(3) is apparently the conjunction of these sentences:

(3a) God wills that GI and the relevant facts about Casper's origins obtain.
(3b) God wills that Casper be white.

But by Smith's reasoning (3a) and (3b) respectively entail the following. (Let 'W' stand for 'Casper is white'.)

(3a*) P(W) = 95%.
(3b*) P(W) = 100%.

All of this is merely meant to show that Smith's argument works equally well against any theist who accepts any indeterministic theory. That is, it does not involve an essential appeal to anything peculiar to the case of HL.

Now, I don't think the argument about theism and GI is a good argument, and I don't think the argument about theism and HL is a good argument, either. One problem I have with both arguments is that they are based on the assumption that it makes sense to talk about unconditional probabilities, and I have doubts about that assumption. But even if we grant that it does make sense to talk about unconditional probabilities, I think there is still a flaw in these arguments. Take the argument about GI. I think that what is wrong with this argument is that (3a) doesn't entail (3a*), and (3b) doesn't entail (3b*). And I think that this is true even if we grant that it makes sense to talk about unconditional probabilities.

The easiest way to see that the relevant entailments don't hold is to begin by considering a case involving a mere mortal. Suppose George is a powerful general, and suppose that if he gives the order for there to be a sea battle tomorrow, then there definitely will be a sea battle tomorrow. But suppose that George has not yet made up his mind about whether to give the order. Suppose, in fact, that there is a 50% chance that George will give the order for a sea battle. That is, suppose that the unconditional probability that George will give the order for a battle is 50%. Then does (4) ential (4*)?

(4) George will give the order for a sea battle tomorrow.
(4*) The probability that there will be a sea battle tomorrow is 100%.

The answer is 'No'. The reason has to do with the fact that (4*) is supposed to be an unconditional probability statement. Even if we assume that George *will* give the order for the battle, it remains true that the *unconditional* probability that there will be a sea battle tomorrow is 50%. For on our assumptions the following would all be true right now:

(a) The unconditional probability that George will give the order for a sea battle is 50%.
(b) George will give the order for a sea battle tomorrow.
(c) The unconditional probability that there will be a sea battle tomorrow is 50%.

If (a)-(c) can all be true, then (4) does not entail (4*). It remains true that there is an interesting connection between George's giving the order and the chances of there being a sea battle tomorrow. That connection can be expressed by the following *conditional* probability statement.

(5) The probability that there will be a sea battle tomorrow, given that George will give the order for a sea battle tomorrow, is 100%.

Similarly, although (3a) doesn't entail (3a*), and (3b) doesn't entail (3b*), the following conditional probability statements are true.

(3a**) The probability that Casper be white, given that God wills that GI and the relevant facts about Casper's origins obtain, is 95%.

(3b**) The probability that Casper be white, given that God wills that Casper is white, is 100%.

But these last two sentences are compatible with each other.

I take it that these considerations show that a sentence of the same form as (2a) does not, in general, entail the corresponding sentence of the same form as (2a*); and similarly for (2b) and (2b*). Moreover, once this point has been appreciated, I think it can also be seen that, in particular, (2a) does not entail (2a*), and neither does (2b) entail (2b*). For consider (2b) and (2b*), and imagine the following situation. God is going to bring into existence some universe or other. But there are twenty possible universes that are tied for best in the intrinsic value ranking, so that God has no particular reason to choose any one of these twenty over its rivals. Nineteen of the twenty possible universes are universes with metric h_{ij} and matter field Φ, while the twentieth is a universe with some other metric and matter field. In addition, however, God is whimsical. She wants to leave it up to chance which of the twenty relevant universes comes into existence. Since she is omnipotent, it is easy for God to see to it that for each of the twenty there is a 5% chance that she's going to will that that universe come into existence. Thus there is a 95% probability that she's going to will that a universe with metric h_{ij} and matter field Φ come into existence, and a 5% probability that she's going to will that another kind of universe come into existence. Finally, imagine that, as it happens, God is going to will that a universe with metric h_{ij} and matter field Φ come into existence. Then it seems to me that the following would all be true at the same time:

(d) The unconditional probability that God wills that a universe with metric h_{ij} and matter field Φ begin to exist is 95%.

(e) God wills that a universe with metric h_{ij} and matter field Φ begin to exist.

(f) The unconditional probability that a universe with metric h_{ij} and matter field Φ begin to exist is 95%.

(2b) would be true in this situation, and (2b*) would not be true. This shows that (2b) does not entail (2b*). Similar considerations can be used to show that (2a) does not entail (2a*).

It might be objected at this point that God could not be whimsical in the relevant way, so that the situation I have described, in which (2b) is true and (2b*) is not, is not really a possible situation. But I would reply that there is nothing in the standard definition of God (as an omnipotent, omniscient, omnibenevolent and necessarily existing being who is the creator of all contingent things) that rules out such whimsicalness. Thus even if the only possible situations in which (2b) is true and (2b*) is false are situations involving a whimsical God, then Smith's argument still does not show that Hawking's quantum cosmology is inconsistent with theism; at most, Smith's argument would show that Hawking's quantum cosmology is inconsistent with the combination of theism and the claim that God cannot be whimsical.

It might also be objected that there could not be several different possible universes that are tied for best. But I would reply that even if the only situations in which (2b) would be true and (2b*) false are situations involving ties for best among possible universes, then Smith's argument still does not show that Hawking's quantum cosmology is inconsistent with theism; at most, Smith's argument would show that Hawking's quantum cosmology is inconsistent with the combination of theism and the claim that there cannot be ties for best among possible universes.

One last point about (2), (2a), (2b), (2a*), and (2b*). It seems to me that the intuition that (2a) and (2b) entail (2a*) and (2b*), respectively, can be accommodated by the following conditional probability statements.

(2a**) The probability that a universe begin to exist with the metric h_{ij} and matter field Φ, given that God wills that Hawking's wave function law obtains, is 95%.

(2b**) The probability that a universe begin to exist with the metric h_{ij} and matter field Φ, given that God wills that a universe begin to exist with the metric h_{ij} and matter field Φ, is 100%.

But these last two sentences are consistent with (2). Thus the theist can accept that (2), (2a), (2b), (2a**), and (2b**) were all once true, while at the same time denying that either (2a*) or (2b*) was ever true. (Of course, if the theist wants, he or she could say that, as it happens, one sentence out of this pair - (2b*), say - was once true, even though it is not entailed by (2b). The theist could even say that, as it happens, (2a*) was true at one time, while (2b*) was true at another time. But as long as the theist is not compelled to admit that both sentences in the pair were true at the same time, the theist is not, as far as I can tell, committed to any contradiction.)[4]

References

[1] J. Hartle and Stephen W. Hawking, 'Wave Function of the Universe', *Physical Review D* 28 (1983) 2960-75.

[2] Stephen J. Hawking, *A Brief History of Time* (New York: Bantam Books, 1988).

[3] Quentin Smith, 'Stephen Hawking's Cosmology and Theism', *Analysis* 54.4 (October 1994) 236-43.

[4] I am grateful to Mark Aronszajn, Theodore Drange, Sharon Ryan, Quentin Smith and the editor of *Analysis* for helpful comments on earlier versions of this paper.