Is the Universe Self-caused?

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I

Quentin Smith has been arguing for more than a decade that the universe is uncaused.[1] For nearly as long he has also argued that it appeared spontaneously from *literally* nothing.[2] I have replied to these arguments in many places, including a recent essay in *Philosophy*.[3] Now, apparently, Smith has changed his mind: In his most recent contribution to *Philosophy*[4], he argues not that the universe is uncaused, but that it is self-caused. His motives for so doing remain much the same, however: He would like to undermine the efforts of theists to show that the universe requires an external cause, by arguing that the universe can cause itself (580). I do not think that the arguments he gives for this new position are any more plausible than his older ones for an uncaused universe, so I don't think that he has advanced the cause of atheism. This essay defends that evaluation.

Smith offers three arguments for his new position, but admits that the third argument is 'more dubious or controversial' (585)

[1] Quentin Smith, 'The Uncaused Beginning of the Universe', *Philosophy of Science* **55** (1988), 39–57.

[2] See, e.g., Quentin Smith, 'The Wave Function of a Godless Universe', in W. L. Craig and Q. Smith, *Theism, Atheism, and Big Bang Cosmology* (Oxford: Clarendon Press, 1993), 301–37; 'Stephen Hawking's Cosmology and Atheism', *Analysis* **54** (1994), 236–43; 'The Ontological Interpretation of the Wave Function of the Universe', *The Monist* **80** (1977), 160–85; 'Quantum Cosmology's Implication of Atheism', *Analysis* **57** (1977), 295–304; 'Simplicity and Why the Universe Exists', *Philosophy* **72** (1977), 125–32.

[3] See, e.g., R. J. Deltete, 'Review of W. O. Craig and Q. Smith, *Theism, Atheism, and Big Bang Cosmology*' in *Zygon: Journal of Religion and Science* **30** (1995), 653–6; 'Much Ado About Nothing: A Critique of Quantum Cosmogenesis' (1994); 'Emerging From Imaginary Time', *Synthese* 108, 185–203; 'Obtenir quelque chose a partir de rien: le vide en cosmologique quantique' in *Le Vide: Univers du Tout ou du Rien* (Brussels: Revue de l'Universite de Bruxelles, 1997), 411–22; 'Hartle-Hawking Cosmology and Unconditional Probabilities', *Analysis* **57**, 304–15; 'Simplicity and Why the Universe Exists', *Philosophy* **72** (1977), 490–4.

[4] Quentin Smith, 'The Reason the Universe Exists is that it Caused Itself to Exist', *Philosophy* **74** (1999), 579–86. All of the (internal) page citations in my essay are to this article.

https://doi.org/10.1017/S0031819100000693 Published online by Cambridge University Press

than the other two. Indeed it is. I shall therefore comment only on the first two arguments.

II

Smith's first argument begins by claiming that situations in both classical and contemporary physics admit of interactions that are mutual, simultaneous, and instantaneous. Smith alludes to EPR-like experiments, but he develops an example from classical Newtonian gravitational theory which has bodies (a planet and its moons, e.g) interacting with one another both simultaneously and instantaneously. From this, he asks us to imagine an 'original situation' of the universe consisting of three 'particulars' (e.g., three 'elementary particles'), a, b and c, which interact causally with one another mutually, simultaneously and instantaneously—with a causing b to exist, b causing c to exist, and c causing a to exist. 'This causal loop,' he says, 'obtains at the first instant of time, t=0'. 'In this case,' Smith claims, 'the universe *begins* to exist, is *caused* to begin to exist, but *is not caused to begin to exist by God or any other cause(s) external to the universe*' (581; italics in original).

Interpreters of EPR-like experiments are generally inclined to reject separability (the idea that physical systems can be cleanly isolated), even if reluctantly, and to endorse some form of holism (the idea that everything is somehow 'entangled'), than they are to reject locality (the idea that all real physical interactions are local and time-dependent), since instantaneous action at a distance would apparently violate the requirements of relativity. And interpreters of classical physics, including almost all physicists, would now reject Newtonian gravitational theory, in part (at least), because it does seem to require *actio in distans*.[5] But for my reply, let that pass. More pressing is the question: Whence came the three 'particulars'? There is no self-caused beginning if they are merely posited, unexplained, to get the universe going. The Newtonian analogue clearly suggests that they are already 'in place' as enduring objects, and so does the brief reference to EPR-like experiments. If so, then Smith has simply assumed his 'original situation'; it is not self-caused.

In reply, Smith suggests that a, b, and c need not be enduring

[5] See, e.g., the essays in J. T. Cushing and E. McMullin (eds), *Philosophical Consequences of Quantum Theory: Reflections on Bell's Theorem* (Notre Dame, IN: University of Notre Dame Press, 1989). Also R. J. Deltete and R. Guy, 'Einstein and EPR', *Philosophy of Science* **58** (1991), 377–97; and R. J. Deltete, 'Bell's Theorem and Individuality', *Philosophical Studies* **67** (1992), 169–77.

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objects, merely 'causally connected temporal parts (states, events)' (581). So we have, in his scenario, just three causally connected temporal states. There are at least two problems with this suggestion. First, states of what? Of the universe? If so, where did *they* come from? (This is the problem mentioned above, now for states or events instead of for enduring objects.) Second, although Smith's original state is supposed to characterize the universe at t=0, its 'particulars' have 'temporal parts'? How could that be? What could it mean to say that the universe in its first instant had 'temporal parts'? Smith's answer, presumably, is that the parts of the universe—the three particulars—interact simultaneously and instantaneously. So we have, in the original state, three causally connected 'states or events' that interact simultaneously and instantaneously at t=0, and this is how the universe is self-caused. Still, it is difficult to make any sense of the idea that the 'ingredients' of the original condition, whatever they are, have temporal parts, if the original condition obtains at t=0, and t=0 is the 'first instant of time' (581). But Smith needs the three states or events, a, b, and c, to 'get things rolling'; and we don't have *their* self-causation. In short, if his argument is relevantly analogous to the Newtonian example he develops, then it presupposes the existence of enduring objects which are not self-caused; and if it is not analogous to the Newtonian case, he has to assume events, states, or whatever (with 'temporal parts') that do not have a causal origin.

III

In his second argument, Smith asks us to suppose that the 'first hour of the universe's existence is half-open in the earlier direction' (582), by which he means that for every instantaneous state of the universe there is an earlier state, and which implies that there is no first instant or state. From this, Smith concludes that 'the universe begins to exist, but ... its beginning to exist is internally caused. It is internally caused in the sense that each instantaneous part of the *finitely old* succession of parts is caused by earlier instantaneous parts of the succession' (582; my emphasis).

The 'first instant of time', t=0, is assumed to be real in Smith's first argument; but in this argument it is 'hypothetical' (582), since there is, really, no first instant. Smith's likely reply is that he intends his argument for self-causation to apply both to a universe with a first instant and to one that has no first instant, even though it is finitely old. Can a universe be finitely old, however, if it does not have a first instant—a beginning? Smith says that his second argu-

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ment shows that each state of the universe is preceded by *and* caused by an earlier state. In fact, his argument at best entitles him to the conclusion that each instant (state) is preceded by an earlier instant (state), not that each state is caused by an earlier one. Temporal succession does not imply causal production. But I am willing to grant that each state of the universe causes its immediately subsequent state, and in the robust productive sense that it 'brings it about' (whether deterministically or probabilistically is not of concern here). What I do not grant, since it seems to me very problematic, is the claim that each state is caused by a preceding state *if* the universe is finitely old. For if the universe is finitely old, it had a beginning, and that beginning was not caused by a preceding state and was not self-caused.

Here Smith might reply that if a finite length is divisible *ad infinitum* while remaining finite, a finite time could also be infinitely divisible and still finite. The idea here is that length and time are both continua. The response to this is that most physicists do not think that length *is* infinitely divisible; rather, they think that there is a minimum length—the so-called Planck length. Similarly, they do not think that time is divisible *ad infinitum*; they think that it too has a minimum increment—the so-called Planck time. There are good theoretical reasons for regarding the Planck length and time as genuine *physical* minima.[6] To this Smith may reply, as he does in his essay for *Philosophy*, that his arguments are 'purely metaphysical' (579); but at the intersection of fundamental physics, cosmology and metaphysics, it is very difficult to know how their absolute separation could be maintained. In any case, in pursuit of his aim of discrediting theism, Smith seems to help himself to some well-founded ideas at this intersection (that the universe is finitely old, e.g.), while ignoring others (that time is not continuous and infinitely divisible, e.g.).[7]

[6] See, e.g., M. B. Green, J. H. Schwarz and E. Witten, *Superstring Theory* (Cambridge University Press, 1987); and Kip Thorne, *Black Holes and Time Warps: Einstein's Outrageous Legacy* (New York: W. W. Norton, 1994).

[7] Aristotle (in the *Physics*—a study in physics or metaphysics?) analysed time much as Smith does in his second argument—for every instant there is a preceding instant. Aristotle's argument assumed eternality: since time is eternal, it must be infinite with respect to division (so that there is no beginning to time), and also infinite with respect to addition (so that there is no end to time). The relevant part of the argument, in this essay, is that temporal eternality implies temporal divisibility *ad infinitum*—a claim (is it physical or metaphysical?) that is equivalent to the claim that *either* time in infinitely divisible *or* the universe is finitely old. Aquinas accepted

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I conclude that Smith's arguments do not support his contention that the universe is self-caused or the atheist position that they are supposed to buttress.

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Aristotle's reasoning, but believed (through faith in the scriptures) that the universe did have a beginning. Smith, ignoring Aristotle's argument and lacking Aquinas's faith, endorses the idea that the universe has a finite age *and* that this age is infinitely divisible.

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