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The Origin And Creation Of The Universe: A Response to Adolf Grünbaum

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Adolf Grünbaum argues that the creation, as distinct from the origin, of the universe is a pseudo-problem. Grünbaum, however, seriously misconstrues the traditional argument for creation and his three groups of objections are therefore largely aimed at straw men or else misconceived. His objections to the scientific argument for creation are based on idiosyncratic definitions or deeper presuppositions which need to be surfaced and explored. He therefore falls short in his attempt to show that the question of creation is not a genuine philosophical problem.

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1. Introduction

When a man who is arguably the greatest living philosopher of space and time asserts that the question of creation in physical cosmology is a "pseudo-problem" (Grünbaum [1990]), then the philosopher who is interested in natural theology had better sit up and take notice. According to Grünbaum, the question of the *origin* of the universe is, indeed, a genuine problem which is addressed by physical cosmology; but he differentiates this from the pseudo-problem of the universe's *creation*. Whereas the former problem concerns whether the universe is temporally finite in the past, the latter seeks an "external cause" of the beginning of the universe, particularly a divine cause, or God. Grünbaum argues that this latter question is not merely pseudo-science, but a pseudo-problem altogether.

Now I certainly agree that the *origin* of the universe and the *creation* of the universe are conceptually distinct in that the latter alone has reference to a cause. One may even agree that the problem of creation is not properly a part of physical cosmology, but is a *meta*-physical problem. But I should argue that the origin of the universe *implies* the creation of the universe, since it is metaphysically impossible that the universe came into being spontaneously out of nothing.

2. The Traditional Cosmological Argument

Grünbaum, however, disagrees sharply with this traditional cosmological argument for a temporally first cause of the universe. According to Grünbaum, the argument is based on the premiss that "Everything has a cause," and it proceeds to inquire as to the cause of the universe, assuming tacitly that the physical universe had a temporal beginning. It concludes that the universe as a whole had a beginning in the finite past as the result of an act of creation out of nothing by a single, conscious, external cause, or agent, who is then claimed to be God.

This, however, is a gross caricature of the traditional argument. The causal premiss operative in the argument is not that everything has a cause, but that "Whatever begins to exist has a cause." This fact has been repeatedly pointed out by theists, but stereotypes seem to die hard. Furthermore, proponents of this argument did not simply assume that the universe began to exist, but presented elaborate philosophical defenses of this premiss, employing arguments against infinite temporal regression such as came to be embodied in the thesis of Kant's first antinomy concerning time. Finally, the identification of the external cause of the universe's inception was not gratuitously assumed to be a

personal Creator; rather the proof's proponents argued for this conclusion on the basis of the fact that a temporal effect could not arise from an eternal cause unless that cause were a personal agent.

Grünbaum goes on to present three groups of objections against his misconstruction of the cosmological argument. Group I seems to draw into doubt the concept of "cause" in the argument: (i) The concept is used equivocally, since in the premiss it refers to causes which transform previously existing materials from one state to another, whereas in the conclusion it refers to a cause which creates *ex nihilo*. (ii) It does not follow from the causal premiss that the first cause is a conscious agent. (iii) It is logically fallacious to infer that there is a *single* conscious agent responsible for the first state of the total physical universe.

To which it may be answered: (i) The univocal concept of "cause" employed in premiss and conclusion alike is the concept of efficient causality, that is to say, something which produces or brings into being its effects. Whether such production involves transformation of previously existing materials or creation *ex nihilo* is completely incidental. That this is so is evident from the fact that the proponent of the argument must confront and deal with the objection that the first cause may not have created *ex nihilo*, but instead transformed an eternal, quiescent universe into a universe in change (Goetz [1989]). So the argument is clearly not equivocal. (ii) Of course, not all efficient causes are personal; but apart from agent causation it is extremely difficult to explain how a temporal universe could have arisen from a state of changeless eternity. A mechanically operating set of necessary and sufficient conditions would either have produced the effect from eternity or not at all. (iii) The inference to a single external cause, while not following strictly from the argument proper, seems justified in light of the principle that one should not multiply causes beyond necessity. For his part, Grünbaum cannot seem to decide whether the argument commits the fallacy of composition or involves a quantifier shift. But it seems obvious that the argument runs neither "Everything in the universe has a cause; therefore, the whole universe has a cause" nor "Every thing has a cause; therefore, there is one cause of every thing." Rather the argument is a logically impeccable example of universal instantiation: "Whatever begins to exist has a cause; the universe began to exist; therefore, the universe has a cause."

Group II objections seem to focus on the claim that the temporal regress of events must be finite and terminate in an uncaused first cause: (i) Causality is logically compatible with physical causal chains which extend infinitely into the past. (ii) If everything has a cause of its existence, then we must ask for the cause of God's existence.

Again, one may reply: (i) It is not the concept of causality as such which is incompatible with infinite temporal regression. Rather the incompatibility is between the concept of actual infinity and a temporal regress of events. Grünbaum's attempts to write off the belief in the impossibility of an infinite past as due to "thought fatigue" or a quantifier shift merely exposes his unfamiliarity with the arguments involved. (ii) No version of the cosmological argument has ever contended that everything has a cause. According to the *kalam* version we are considering, everything that begins to exist has a cause. Since God is eternal, He requires no cause, whereas the universe, which began to exist, does.

The objections of Group III are directed at assertions that divine *creatio ex nihilo* surpasses all understanding: (i) If *creatio ex nihilo* is incomprehensible, then belief in such a doctrine is irrational. (ii) An incomprehensible doctrine cannot serve as an explanation for anything.

But the natural theologian has a ready response: (i) *Creatio ex nihilo* is not incomprehensible in Grünbaum's sense. The doctrine that God brought the universe into being makes a clear and well-understood assertion, as is evident from the fact that we are debating it. Whether one accepts the doctrine on the basis of philosophical argument, scientific evidence, or revelation, the statement that a finite time ago God brought the universe into being out of nothing is not meaningless jibberish, but expresses a proposition with intelligible content. (ii) Therefore, the doctrine most certainly does constitute a purported explanation of the origin of the world. The natural theologian could quite cheerfully concede that it is not a *scientific* explanation; but it is an explanation nonetheless, a philosophical or metaphysical explanation.

These objections are so flimsy that one cannot help but wonder who it is that they are meant to refute. Who are these unnamed theists whose contentions Grünbaum attacks? What philosopher of religion or natural theologian in the history of thought is supposed to be susceptible to these objections? I suspect that Grünbaum is really attacking nothing more than popular misconceptions of the cosmological argument.

3. The Scientific Cosmological Argument

Grünbaum then turns his attention to what he calls the "New Creation Argument," based on the Big Bang model of the origin of the universe. Grünbaum first considers classical Big Bang models of two sorts: case (i) features a time interval which is closed at the Big Bang instant t=0 such that t=0 was a singular, temporally first event of physical space-time, whereas case (ii) features a time interval which is finite but open in the past and excludes the mathematical singularity at t=0 from being a point of space-time.

Let us consider case (i) first. According to this model, instants of time simply did not exist prior to t=0. Thus, it is

potentially misleading, opines Grünbaum, to say that "time began" at *t*=0:

> This description makes it sound as if time began in the same sense in which, say, a musical concert began. And that is misleading, precisely because the concert was actually preceded by actual instants of time, when it had not yet begun. But, in the Big Bang model under consideration, there were no such earlier instants before t=0 and hence no instants when the Big Bang had not yet occurred (Grünbaum [1989], p. 389).

This is a curious argument, in which Grünbaum appears to assert that it belongs analytically to the concept of some entity *x*'s beginning to exist that there were instants of time prior to *x*'s beginning at which *x* did not exist. Perhaps we can express this by stating

> "*x* begins to exist"=def. "*x* exists at time *t* and there are times immediately prior to *t* which *x* does not exist."

But it seems very strange that *x*'s beginning to exist at *t* entails the existence of temporal instants prior to *t*. Imagine that the temporal instants prior to a performance of Beethoven's Fifth Symphony were non-existent. Should we say that the symphony concert then fails to have a beginning, even though it is precisely the same concert as that which is contingently preceded by temporal moments? Grünbaum gives no argument for this claim. The fact that *x* begins to exist ought to leave the question of existents prior to *x* altogether open; that is,

> "*x* begins to exist"=def. "*x* exists at *t* and there is no time immediately prior to *t* at which *x* exists."

So understood, any thing existing at the first moment of time begins to exist as surely as a temporally embedded concert begins to exist. The ineptness of Grünbaum's definition is evident in that it entails that a beginning of time itself is analytically impossible, which is surely wrong. To say that time began to exist is not to assert the self-contradiction that prior to *t*=0 there were times at which time did not exist, but to claim, as Quentin Smith points out, that (i) there is a finite interval of time such that every other interval of the same length is later than that interval and (ii) prior to any interval of a given finite length there is at most a finite number of intervals of the same length (Smith [1985b], p. 579).

Grünbaum trades on certain infelicities of expression, for example, the question as to what happened *before* the Big Bang, in order to object to seeking a cause of that event. But such expressions may be regarded as a *façon de parler*; it is philosophically unobjectionable to conceive of God as causally, if not temporally, prior to the Big Bang. Nor do I see any reason for Grünbaum's objection to our saying that the universe came *into* being or that its origin was "sudden." A physical thing comes into being if it exists at *t* and there are no moments immediately prior to *t* at which it exists; an event is sudden if it happens without antecedent warning. Both these expressions seem entirely appropriate with regard to the universe's origin.

Oddly enough, Grünbaum concedes that the question, "What caused the Big Bang?" may well be appropriate if there were instants of time prior to $t = 0$. Very well; suppose that God led up to creation by counting, "1, 2, 3, . . ., *fiat lux*!" In that case the series of mental events alone is sufficient to establish a temporal succession prior to the commencement of physical time at $t = 0$. There would be a sort of metaphysical time based on the succession of contents of consciousness in God's mind prior to the inception of physical time. Thus, it is meaningful to speak both of the cause of the Big Bang and of the beginning of the universe. But are we to think that these notions become meaningless due simply to the contingent fact that God may not have been thinking discursively in the state of affairs in which He exists alone without the universe?

I cannot help but wonder whether the deeper issue which really sticks behind Grünbaum's objection is not his adherence to a B-theory of time. On an A-theory of time, according to which temporal becoming is real and objective, the universe's *coming to be* (something it does *not* do on a B-theory) seems to cry out for a causal explanation. How one stands with regard to the A- versus B-theory of time will probably, therefore, be determinative for whether one regards the quest for a cause of the universe's beginning as appropriate or not.

In this brief paper, the debate between the A- and B-theory cannot be adjudicated.{1} If, however, we do adopt an A-theoretic point of view, then I see no reason why in case (i) we may not speak intelligibly of a beginning of the universe at *t*=0 and inquire concerning the cause of this event.

What about case (ii), according to which the singularity exists on the boundary of space-time, rather than as an event in space-time? According to this model, there is no first instant of time even though one may designate a first interval of time of arbitrary finite duration, just as there is no smallest fraction in the finite interval between 0 and 1. Grünbaum's salient point here is that once again there are no temporal instants prior to the singularity, so that questions concerning the beginning and creation of the universe are illegitimate. Obviously, however, Grünbaum's argument concerning case (ii) makes no advance over his unsound objections to case (i). His conclusion that matter has *always* existed, though the age of the universe is finite, is mere word play--the key concept here is *permanence*, and that is a much more subtle issue than Grünbaum allows (see Smith [1989]). The universe has "always" existed in the sense that there is no past moment of physical time at which it did not exist; but it has not "always" existed in the strong sense of being

permanent, since it had a beginning of its existence, and therefore it is sensible to ask for its cause.

Turning then from classical to quantum cosmology, Grünbaum maintains that such models provide no warrant for invoking an external cause for the quantum mechanical vacuum from which the observable universe is supposed to have emerged. Unfortunately, Grünbaum conflates two distinct types of quantum cosmological models, namely, vacuum fluctuation models associated with Tryon, Brout, Englert, *et. al.*, and the wave functional model of the universe espoused by Hartle and Hawking. I have elsewhere argued that neither of these approaches provides an empirically plausible alternative to the hypothesis of creation and that they are no less metaphysical than theism. Rather than repeat those arguments here, let me say only that vacuum fluctuation models face, among other difficulties, the severe problem of explaining the existence of our relatively young cosmos if the quantum mechanical background space is supposed to have existed from eternity (Barrow and Tipler [1986], pp. 605-07), and the Hartle-Hawking model is predicated upon a physically unintelligible and metaphysically misguided substitution of imaginary time for ontological time. In any case, the salient point is that Grünbaum has not succeeded in showing either that it is somehow misleading or inappropriate to talk about the beginning of the universe in the context of current scientific cosmology or that it is philosophically unintelligible to ask for a cause of that beginning.

4. Conclusion

In summary, while a distinction between the origin and creation of the universe can (and should) be made, Grünbaum's refusal to regard the latter as anything more than a pseudo-problem is very poorly founded. His objections to the traditional cosmological argument were largely aimed at straw men or else misconceived, while his reservations about the beginning of the universe in current cosmology were based on idiosyncratic definitions or perhaps deeper presuppositions about the nature of time that need to be surfaced and explored. The question of the creation of the universe is a genuine and important philosophical problem that deserves to be discussed.

Endnotes

{1}But two points may be adumbrated: (i) Grünbaum's chief justification for the B-theory, that physics knows nothing of temporal relations of past, present, and future, is inadequate because it fails to take any consideration of a possible distinction between metaphysical and physical time. Our *Gedankenexperiment* about God's counting prior to creation shows that it is meaningful to speak of time even in the absence of *physical* events, which makes it evident that the temporal relations operative in physics based on clock time and light signal synchronization do not supply an exhaustive account of time, a conclusion which has been reinforced by phenomenological analyses of consciousness (Smith [1988]), by concepts of personal identity (Hoy [1978]), and by studies of tense and language (Smith [1987]). It is entirely possible that the time of physics *is*, in fact, a B-theoretic time, but that this is an abstraction, a skeleton, of full-blooded metaphysical time, which is an A-theoretic time. (ii) Grünbaum has not adequately addressed the criticism that the B-theory is incoherent because even if the becoming of physical events is mind-dependent, still the becoming of mental events--the succession of contents of consciousness--is not mind-dependent, but is an objective feature of reality. If we say that our subjective experience of becoming is, like external, physical events, itself strung out in a B-series, then it seems difficult to account for why it appears to us as an A-series.

References

Barrow, J. and Tipler, F. [1986]: *The Anthropic Cosmological Principle.* Oxford: Clarendon Press.

Goetz, Stewart C. [1989]: "Craig's Kalam Cosmological Argument." *Faith and Philosophy* 6, pp. 99-102.

Grünbaum, Adolf. [1990]: "The Pseudo-Problem of Creation in Physical Cosmology." In *Physical Cosmology and Philosophy*, pp. 92-112. Edited by John Leslie. Philosophical Topics. New York: Macmillan Co.

Hoy, R. [1978]: "Becoming and Persons." *Philosophical Studies* 34, pp. 269-80.

Smith, Q. [1985]: "On the Beginning of Time." *Noûs* 19, pp. 579-84.

_____. [1987]: "Problems with the New Tenseless Theory of Time." *Philosophical Studies* 52, pp. 371-92.

_____. [1988]: "The Phenomenology of A-Time." *Dialogos* 52, pp. 145-53.

_____. [1989]: "A New Typology of Temporal and Atemporal Permanence." Noûs 23, pp. 307-29.

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