

# God and the Beginning of Time

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## SUMMARY

Leibniz's question to Clarke, "Why Did God Not Create the World Sooner?" poses a difficult problem for theists holding to a neo-Newtonian view that God is omnitemporal and that time is beginningless. Kant's escape route—denying that the universe began to exist—is rendered implausible by contemporary cosmology. Unless we are prepared to say that the universe popped into being uncaused, we must face Leibniz's conundrum.

Leibniz's argument, when properly formulated, leads to the conclusion that time began to exist. The individual premises are examined and found to be plausible.

But if time therefore began to exist, how is God's relation to the beginning of time to be construed? It is argued that God is plausibly timeless sans the universe and temporal with the universe. This paradoxical conclusion is defended against objections.

## GOD AND THE BEGINNING OF TIME

Did time have a beginning? Isaac Newton, whose disquisitions on time and space in his *Philosophiae naturalis principia mathematica* became determinative for the classical concepts of space and time which reigned up until the Einsteinian revolution, held that it did not. Although Newton held to the traditional Christian doctrine of *creatio ex nihilo*, he did not think that the beginning of the universe implied the beginning of space and time. Notoriously Newton held that prior to the beginning of the universe, there existed an infinite duration devoid of all physical events, a beginningless time in which at some point a finite time ago the universe came into being. For Newton our familiar clock time is but a "sensible measure" of this absolute time, which, he says, "of itself, and from its own nature, flows equably without relation to anything external, and by another name is called duration." [1]

The prospect of this empty, beginningless duration prior to the inception of the universe has seemed scandalous to many, since in the absence of anything which endures it seems bizarre to maintain that duration itself exists. But Newton would have agreed wholeheartedly! Those who envision Newtonian absolute time as pure duration unrelated to and ungrounded in any substance or as itself an enduring substance have not yet comprehended Newton's metaphysical views. For Newton conceived of absolute time as grounded in God's necessary existence. In the *General Scholium* to the *Principia*, Newton observes that "It is allowed by all that the Supreme God exists necessarily" [2]—indeed, Newton held that "All that diversity of natural things which we find suited to different times and places

could arise from nothing but the ideas and will of a Being necessarily existing" [3]—"and by the same necessity he exists *always* and *everywhere*." [4] As a being which exists necessarily, God must exist eternally, which Newton took to imply immemorial and everlasting duration. He writes,

He is eternal and infinite . . . ; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity . . . He is not eternity and infinity, but eternal and infinite; he is not duration or space, but he endures and is present. He endures forever, and is everywhere present; and, by existing always and everywhere, he constitutes duration and space. Since every particle of space is always, and every indivisible moment of duration is *everywhere*, certainly the Maker and Lord of all things cannot be *never* and *nowhere*. [5]

Because God is eternal, there exists an everlasting duration, and because He is omnipresent, there exists an infinite space. Absolute time and space are therefore contingent upon the existence of God. As Newton elsewhere puts it, they are "emanative effects" of God's existence. [6] Thus, for Newton the beginning of the universe does not imply the beginning of time because prior to the moment of creation there existed God, infinitely enduring through beginningless ages up until that moment at which He created the world.

Why Did Not God Create the World Sooner?

Newton's conception of absolute time scandalized his continental contemporary Gottfried Leibniz. On Leibniz's preferred relational view of time, there are no instants of time in the absence of changing things; hence, given God's immutability, time begins at creation and God's eternal existence is to be construed in terms of timelessness. [7] In his celebrated correspondence with the Newtonian *Anhanger* Samuel Clarke, Leibniz confronted Clarke with the following conundrum: Why, if He has endured through an infinite time prior to creation, did not God create the world sooner? [8] Leibniz presented this challenge as an objection to Newton's substantialist view of time, but it is, in fact, an objection to time's past infinity. The substantialist who believes in the finitude of the past will find the question malformed, since there are no empty instants of time preceding creation, as Newton believed. Leibniz's question is thus irrelevant to the substantialism/relationalism debate; it is rather a challenge to the infinitude of the past. [9] It asks what possible reason God could have had for delaying for infinite time His creation of the world. Whether time is construed substantively or relationally, since God created all reality outside Himself *ex nihilo* at some time in the past, it follows, if past time is infinite, that God endured through an infinite period of creative idleness up until the moment of creation. Why did He wait so long?

One might think to avert the force of this conundrum by denying that the universe in fact began to exist, as Newton and Leibniz assumed. In fact Immanuel Kant thought that this was the position which

we are rationally driven to adopt. [10] In the antithesis to his First Antinomy concerning time, Kant asserts that "The world has no beginning" but "is infinite as regards. . . time . . . ." [11] He argues,

Since the beginning is an existence which is preceded by a time in which the thing is not, there must have been a preceding time in which the world was not, i.e. an empty time. Now no coming to be of a thing is possible in an empty time, because no part of such a time possesses, as compared to any other, a distinguishing condition of existence rather than of nonexistence; and this applies whether the thing is supposed to arise of itself or through some other cause. In the world many series of things can, indeed, begin; but the world itself cannot have a beginning, and is therefore infinite in respect of past time. [12]

Kant's reasoning is a reprise of Leibniz's objection to Clarke. Assuming the existence of a homogeneous time prior to the beginning of the world, a time whose moments are not distinguished by the occurrence of events, no reason can be given why the world should come to exist at one moment rather than another. Therefore, the world cannot have begun to exist. Kant thinks to put through the argument without reference to God, but it is dubious if such a strategy is sound. For if the beginning of the universe is truly uncaused, then there need not be any reason why it should pop into existence at one moment rather than another. As one contemporary atheologian has put it: the universe "came from nothing, for nothing, and by nothing"; it "interrupts without reason the reign of nonbeing." [13] But such an escape from Kant's argument hardly commends itself as plausible. As philosopher of science Bernulf Kanitscheider complains, it is "in headon collision with the most successful ontological commitment that was a guiding line of research since Epicurus and Lucretius," namely, that *out of nothing nothing* comes, which Kanitscheider calls "a metaphysical hypothesis which has proved so fruitful in every corner of science that we are surely well-advised to try as hard as we can to eschew processes of absolute origin." [14] Accepting this quite reasonable advice, we can ignore Kant's noncausal origination alternative, and the antithesis reduces to Leibniz's conundrum.

The difficulty in adopting the conclusion of Kant's antithesis—that the world has no beginning—is that we now have very powerful astrophysical evidence that the universe did in fact have an absolute origin. Indeed, according to Stephen Hawking in his most recent book, "Today almost everyone believes that the universe, and time itself, had a beginning at the big bang." [15] It must be said, however, that the fact that physical time (and space) had a beginning in the Big Bang does not automatically carry with it the conclusion that time itself began, given the distinction drawn by Newton between absolute time, God's time, and our physical measures of time. It is quite easy to conceive of God's existing temporally prior to the Big Bang in a metaphysical time, perhaps busy creating angelic realms. It may be worth noting in this connection that all the results of relativistic Big Bang cosmology can be perfectly reproduced by Newtonian physics alone, the origin of the material universe taking place in an empty preexisting Newtonian space and at a moment in Newtonian absolute

time." [16] Still the astrophysical evidence does point to the origination of the material universe at a point in the finite past before which it did not exist. Thus one evades Leibniz's conundrum by denying the beginning of the universe only at the expense of going against the evidence.

We seem to be encountered with a stark choice, as the physicist P. C. W. Davies points out:

What caused the big bang? . . . One might consider some supernatural force . . . or one might prefer to regard the big bang as an event with out a cause. it seems to me that we don't have too much choice. Either . . . something outside of the physical world. . . or an event without a cause. [17]

If we are unwilling to swallow the idea that the universe came into being uncaused out of nothing, then we are stuck with a supernatural cause. As Sir Arthur Eddington opined, "The beginning seems to present insuperable difficulties unless we agree to look on it as frankly supernatural." [18] But then we must confront squarely the LeibnizianKantian conundrum.

So why did not God create the universe sooner? It might be said that given infinite past time, it is simply logically impossible for God to have a sufficient reason for choosing one moment rather than another to create the world and that God can hardly be blamed for not doing what is logically impossible. [19] God's choices are limited to refraining from creation, creating from eternity past, or choosing arbitrarily some moment of infinite time at which to create.

But far from resolving Leibniz's challenge, such a response serves only to underline the difficulty. The problem may be formulated as follows, where  $t$  ranges over time:

1. If the past is infinite, then at  $t$  God delayed creating until  $t + n$ . (P)
2. If at  $t$  God delayed creating until  $t + n$ , He must have had a good reason for doing so. (P)
3. If the past is infinite, God cannot have had a good reason for delaying at  $t$  creating until  $t + n$ . (P)
4. Therefore, if the past is infinite, God must have had a good reason for delaying at  $t$  creating until  $t + n$ . (HS,1,2)
5. The past is infinite.(P)
6. Therefore, God must have had a good reason for delaying at  $t$  creating until  $t + n$ .(MP,4,5)
7. Therefore, God cannot have had a good reason for delaying at  $t$  creating until  $t + n$ . (MP,3,5)
8. Therefore, God must have had a good reason for delaying at  $t$  creating until  $t + n$ , and God cannot have had a good reason for delaying at  $t$  creating until  $t + n$ . (Conj.,6,7)

9. Therefore, if the past is infinite, God must have had a good reason for delaying at  $t$  creating until  $t + n$ , and God cannot have had a good reason for delaying at  $t$  creating until  $t + n$ . (CP,58)

10. Therefore, the past is not infinite.(RAA,9)

The claim that it is logically impossible for God to have any reason for preferring one moment over another as the moment at which to create does nothing to undermine the crucial premise (2), but rather undergirds the truth of premise (3). In an infinite, empty time prior to the existence of any reality outside of God, there can be no reason for God to wait longer to create the world. At any time  $t$ , after all, He has already waited for infinity! Why delay any longer?

In his interesting analysis of this problem, [20] Brian Leftow observes that if God acquires at some moment a sufficient reason to create the world, this reason must come from some change either within God or outside of God. The only change going on outside of God is the absolute becoming of time itself. If, from eternity past, God has willed to create the world at  $t$ , then the arrival of  $t$  as present could give God a new reason to create. But, says Leftow, it is at least initially plausible that a perfectly rational God could not have from all eternity a reason to create at one particular instant rather than another. For there is nothing about the position of any particular instant which makes it an especially appropriate point for the beginning of the universe. So if God is to have a new reason to create, it must come from within Himself. But since God is from time immemorial perfectly good, omniscient, and omnipotent, no change within Himself can occur which should prompt Him to create at some time rather than earlier. Thus, God cannot acquire at some moment a sufficient reason to create the world. But by the same token neither could He have had some reason from eternity past to create at some particular time, as already seen. Leftow's analysis goes to support (3) above, that God could not have had any good reason at any time  $t$  in the infinite past for delaying at  $t$  His creation of the world until  $t + n$ . Leftow seeks to avert the force of the argument by claiming that God's reason for delaying creating is the joy of anticipation of creating. He says,

So (I submit) God can delay creating to enjoy anticipating a universe and/or desiring to create one. Parents can find joy in the anticipation of a child. . . . So God a fortiori can savor in advance the comingtobe of a universe whose precise nature He foreknows. [21]

Such a portrait of God may seem overly anthropomorphic; but Leftow argues that a person of overflowing love delights in the goodness of a gift he will give and in the joy of the receiver in getting it and that God's nature's being *agapé* makes Him such a person.

The real rub with Leftow's proposal, I think, lies in whether his proposed solution provides an answer to the question of why God would delay for infinite time His creation of the world. Leftow sees no problem in God's waiting for infinite time, since God is infinitely patient. But the question remains of

why God, having anticipated from eternity past the creation of the world, would at  $t$  delay creating until  $t + n$ . Or, obversely, why did He cease waiting and anticipating at  $t + n$  instead of earlier or later? Leftow answers that there is a time  $t$  at which one's anticipation over bestowing a gift begins to wane and so reaches a point of diminishing returns.

So a rational person concerned to maximize his or her overall happiness would have some reason to give his or her gift at  $t$ . . . . But if this is God's concern, then God will not want to wait beyond  $t$  if after  $t$  He will no longer enjoy His maximal state of anticipatory happiness and will enjoy greater happiness if He gives at  $t$ . Now if God foresees His own future states, He knows from all eternity precisely when His anticipation's point of diminishing return will start to fall. If so, He can resolve to create at just this point. [22]

Leftow envisions a sort of "Gaussian curve" representing God's rising and falling anticipatory pleasure (Fig. 1):

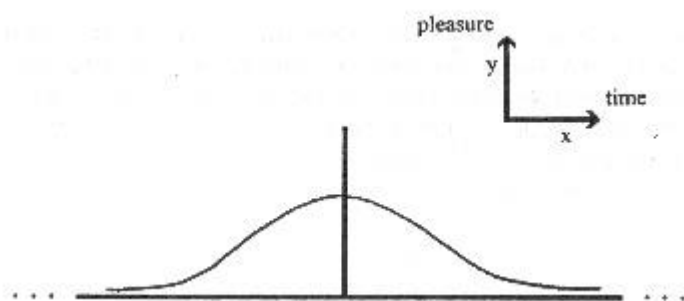


Figure 1: God's anticipatory pleasure rises from a minimal value at  $t = -\infty$  to a peak value before declining to a minimal value at  $t = +\infty$  again

God will create at the moment His anticipatory pleasure peaks, and that is  $t$ , the time of creation. Again, one might reasonably object that such a portrayal of God's anticipatory pleasure is grossly anthropomorphic; but let that pass. The more salient difficulty is that Leftow's Gaussian curve must be logically prior to the fact of the curve's peaking specifically at  $t$  if it is to provide some rationale for God's choosing to create at  $t$ . But then why, if the past is infinite, did God's anticipation peak at  $t$  rather than sooner? Leftow's reply is faltering:

. . . let us imagine a curve *infinite* along the xaxis inscribed in a two dimensional space. There is no empty space along the xaxis into which to shift such a curve. The equations whose values that curve expresses generates a value of  $y$  for each point along the  $x$  axis. Thus we cannot even speak of the curve's nature and its location as two independent factors determining its highest point. Such a curve cannot be shifted. Rather, where its highest point falls clearly is a function of the nature of the curve

alone. The curve's nature suffices to determine where along the xaxis the curve's greatest yvalue occurs. [23]

This reply fails to take account of the paradoxical nature of the actual infinite. Just as the infamous Hilbert's Hotel (each of whose infinitely many rooms are occupied) can accommodate infinitely many new guests simply by shifting each guest into a room with a number twice his own (thereby freeing up all the odd numbered rooms), so God's pleasure curve, though infinitely extended, can be shifted backward in time simply by dividing every value of the xcoordinate by two. Since the past is, *ex hypothesi*, actually infinite, there is no danger of "scrunching up" the front of the curve by such a backward shift. If such a shift seems impossible, what is called into question is the possibility of an infinite past. But given the past's infinity, there is no problem in shifting such a curve: its shape could remain unchanged and yet peak anywhere in the infinite past or future. Therefore, Leftow has not provided a cogent argument for, thinking that God's anticipating creation for infinite time provides a reason as to why God creates at  $t$  instead of  $t + n$  (or  $t n$ ).

premise (1) of our argument seems incontestable. If the past is infinite, then at any moment prior to creation, God existed at that moment and could, at that moment, have brought the universe into being. But He did not. He waited. He delayed creating the world until some later moment should arrive.

The most controversial premise will therefore be (2), that God must have had a good reason for delaying until  $t + n$ . Notice that (2) does not depend on the truth of some broader Principle of Sufficient Reason. It states merely that in this specific case God, existing alone at  $t$ , but deciding to refrain from creating at  $t$  and to delay creating until  $t + n$ , must have had a good reason for waiting. Notice, too, that (2) does not presuppose the infinity of time. Hence, it is doubly irrelevant to protest that given an infinite past God's decision when to create must be arbitrary. Not only does that merely underscore (3), but (2) does not postulate the infinitude of the past. It asserts that if God at some moment prior to creation consciously defers creating until a later moment, then He surely has a reason for doing so. A perfectly rational agent does not delay some action he wills to undertake apart from a good reason for doing so. For this reason, Smith's claim in his discussion of Kant's anti thesis that ". . . something can come to be at one time rather than another *accidentally*" is irrelevant, since Smith does not consider the case of theistic creation. [24] Thus, (2) strikes me as eminently plausible.

Accordingly, the Leibnizian challenge seems to me to furnish a cogent and persuasive argument for thinking that the past is finite. God's idling away eternity, continually delaying His creation of the world throughout infinite past time seems to be an unintelligible conception. Thus, it seems to me that we have good grounds for affirming the finitude of the past and the beginning of time.

Temporality vs. Atemporality of God sans Creation

Now if time had a beginning at some moment in the finite past, it follows that God *sans* the universe exists atemporally, even if subsequent to the moment of creation He is, as Newton believed, temporal. Now *prima facie* such a position seems bizarre, even incoherent. For on such a view there seem to be two phases of God's life, which stand to each other in a relation of earlier/later than. But a timeless phase can hardly be coherently said to exist earlier than a temporal phase of God's life. Leftow has stated the objection forcefully:

If God is timeless, there is no before and after in His life. No phase of His life is earlier or later than any other phase, for only temporal durations and their phases stand in these relations. As it lacks earlier and later parts, an eternal life has no phases, even if (as Eleonore Stump and Norman Kretzmann contend) it is somehow extended. If God is timeless and a universe or time exists, then, there is no phase of His life during which He is without a universe or time, even if the universe or time had a beginning. For a life without phases cannot have one phase which is without the universe or time and another phase which is with it. If God is timeless, the whole of His life is identical with the 'phase' of it during which the universe or time exists, whether or not the universe or time began. [25]

If a timeless phase of one's life is, as Leftow puts it, a phase coextensive with the whole of one's life, it follows that if God has a temporal phase of His life, He cannot also have a timeless phase of His life. Hence, if God is temporal subsequent to creation, He must also be temporal prior to creation; indeed, given His necessary existence, time must be beginningless.

#### Metrically Amorphous Time *sans* Creation

How are we to escape this apparent antinomy? One possibility is suggested by a closer examination of the argument I presented for the finitude of the past. Strictly speaking, the argument does not imply that time itself had a beginning. Rather what it implies is that time which is divisible into distinct intervals must have had a beginning. But the argument would not be incompatible with the existence of an undifferentiated "before" followed by the beginning of time as we know it. Such a view of divine eternity *sans* the universe has been defended by Padgett and Swinburne.[26] Both of them endorse metric conventionalism with respect to time and so regard God existing prior to creation as enduring through a metrically amorphous time, a state which Padgett calls "relative timelessness." Now the conventionalist thesis confronts serious difficulties; [27] but these could be avoided were we simply to say that metric time begins at the moment of creation. If God is changeless prior to creation, perhaps the time which characterized such an existence was radically different from metric time. In a metrically amorphous time, there is no difference between a minute, an hour, or an aeon; more exactly, such measured intervals of time do not exist at all. Thus it is a mere chimaera to imagine God existing, say, one hour before He created the world. Swinburne argues that on such an understanding, God's time is beginningless, but cannot be said to be infinite (or finite):



... think of God, the temporal being, existing byhimself, not having created a universe in which there are laws of nature. There would then ... be no 'cosmic clock' which ticked unstoppably away, that is, there would be no temporal intervals of any definite length. There would just be an event or sequence of events in the divine consciousness. Think of him too as the subject of just one mental event, a conscious act without qualitatively distinguishable temporal parts (e.g., conscious act that does not consist of one thought followed by a different thought). Now ... any event has to take time, but there wouldn't be a truth that this event (this act) had lasted any particular length of time rather than any other. There would be no difference between a divine act of self awareness which lasted a millisecond and one that lasted a million years . . . . Would there be difference between a divine conscious act which was God's only conscious act and was qualitatively identical throughout which was of finite length, and one which was of infinite length? No—so long as the former really is qualitatively identical throughout and thus contains no experience of a beginning or end; and so long as there is no time at which God is not. [28]

Such a view has considerable attraction: it enables us to speak literally of God's existing before creation without affirming the problematic claim that God has endured through infinite time prior to creation. We can also conceive of God's literal foreknowledge of future events subsequent to creation, including His own acts. And we encounter no problems arising from the principle that a cause must be temporally prior to its effect.

Nonetheless, the PadgettSwinburne doctrine of divine eternity is demonstrably defective as it stands and so needs revision. Metric conventionalism is the thesis that there is no fact of the matter concerning the comparative lengths of non nested temporal intervals. What metric conventionalism does *not* assert is that no intervals at all exist in metrically amorphous time or that nested intervals cannot be compared to each other with respect to length. So in a metrically amorphous time, it is meaningful to speak of factual differences of length of certain temporal intervals (Fig. 2).

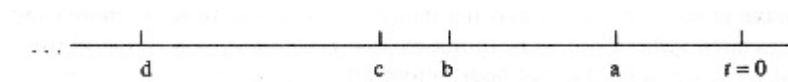


Figure 2: Intervals in metrically amorphous time prior to creation at  $t = 0$ .

According to the conventionalist, there is no fact of the matter concerning the comparative lengths of  $dc$  and  $cb$  or  $db$  and  $ca$ . But there is an objective difference in length between  $da$  and  $ca$  or  $cb$  and  $ca$ , namely  $da > ca$  and  $cb < ca$ . For in the case of intervals which are proper parts of other intervals, the proper parts are factually shorter than the encompassing intervals. This entails that prior to  $t = 0$  God has endured through a succession of an actually infinite number of progressively longer intervals, and we can still ask, "Why did not God create the world sooner?" Thus, our difficulties with the infinitude of

the past return to haunt metrically amorphous divine eternity. In fact, *pace* Swinburne, we can even say that such a time would be infinite. The past is finite iff there is a first interval of time and time is not circular. (An interval is first if there exists no interval earlier than it, or no interval greater than it but having the same end point.) Even a past which lacks an initial instant is finite if it has a first interval. Swinburne's metrically amorphous past is thus clearly not finite. But is it infinite? The past is infinite if there is no first interval and time is not circular. Thus Swinburne's past eternity is infinite. Our inability to compare factually the lengths of temporal intervals in metrically amorphous time therefore does not preclude our determining that the past as a whole is finite or infinite. The thesis of a metrically amorphous time prior to creation does not obviate the difficulties of the infinity of the past.

The shortcoming of the Padgett-Swinburne *Ansatz* is that it is not radical enough. It proposes to dispense with the metric of time while retaining time's isomorphism to a geometrical line. Since on such a line intervals can be distinguished and compared (when nested), one fails to obtain the undifferentiation necessary for time if it is to exist without the world. What needs to be done is to strip time of its isomorphism to a geometrical line: to maintain that there literally are no intervals of time prior to creation. In such a time, there would be no earlier and later, no enduring through successive intervals and, hence no waiting, no temporal becoming, nothing but the eternal "now." This state would pass away in an instant, as a whole, not piecemeal, at the moment of creation, when metric time begins. It would be an undifferentiated "before" followed by a differentiated "after."

It might be said that such an undifferentiated, changeless state hardly deserves to be called temporal—no wonder Padgett refers to it as relative timelessness. In fact it looks suspiciously like a state of timelessness. Topologically, it sounds very much like a point, the paradigmatic symbol of divine timelessness. The only sense in which it seems to count as temporal is that this state exists literally before God's creation of the world and the inception of metric time. That fact may be advantage enough for some thinkers to embrace such a conception divine eternity *sans* the world; it is not to be downplayed.

#### Timelessness *sans* Creation

But perhaps the above enunciated misgivings might prompt us to reexamine the curious alternative that God is timeless *sans* creation and temporal subsequent to creation. A rereading of Leftow's reasoning discloses that he just assumes that if God's life lacks earlier and later parts, then it has no phases whatsoever. But why could there not be two phases of God's life, one atemporal and one temporal, which are not related to each other as earlier and later? Leftow merely assumes that if any phase of God's life is timeless, the whole is timeless. But it may be the case that God's atemporal phase does not exist temporally prior, technically speaking, to His temporal phase.

We have already seen that a state of relative timelessness looks suspiciously like plain, old timelessness. This impression is reinforced by calling upon the tensed or ATheory of time. On a tenseless or BTheory of time it is tempting to picture the two phases of God's life as equally existent, juxtaposed and joined at the moment of creation, the one earlier and the other later. Such a portrayal is admittedly incoherent. But, given an ATheory of time, this picture is an illusion. In reality God existing *sans* creation is entirely alone, utterly changeless and perfect, and not a single event disturbs His immobility. There is no before, no after, no temporal passage, no future phase of His life. There is just God, changeless and solitary. Now the only possible reason we could have for calling such a static state temporal is that temporal states of affairs obtain after it. But insofar as the state of affairs of God existing *sans* the universe obtains, there are, of course, no temporal states of affairs, not in the future or anywhere else. Nothing exists but God in this utterly changeless state.

To claim that time would exist *sans* the world in virtue of the beginning of the world seems to posit a sort of backward causation, the occurrence of the first event causing time to exist not only with the event, but even before it. But on an ATheory of time such backward causation is metaphysically impossible, for it amounts to something's being caused by nothing, since at the time of the effect the retrocause in no sense exists. [29]

The impression that the state of affairs of God existing changelessly *sans* creation is timeless may be reinforced by a thought experiment: think of God in a changeless, solitary state in a possible world  $W^*$  in which He freely refrains from creation. In such a world, it is entirely plausible and coherent to conceive of such a state as timeless. But no intrinsic difference exists between such a state and the state of affairs of God existing *sans* creation in the actual world. The allegedly initial segment of the actual world  $TW$  is perfectly similar to the world  $W^*$ . It seems groundless to say that in one world God is temporal in such a state and in the other world atemporal.

Perhaps the most plausible face to put on the hypothesis of an empty time in which God exists prior to the beginning of the universe is to hold that divine temporality is a sort of "soft fact" which is counterfactually dependent upon, though not caused by, God's action to create the world. The idea is that time exists prior to creation because God at  $t = 0$  acts to bring about a first event; but He is perfectly free to refrain from causing the first event when  $t = 0$  arrives, only were He to refrain, then time would not have always existed and God would have been timeless. But such a scenario seems to involve what Thomas Flint has called a "collapsing counterfactual," [30] that is to say, a counterfactual whose consequent entails the falsity of its antecedent. For we are supposing that

A. If God at  $t = 0$  were to refrain from creating, then time would not have existed, since if God were to remain utterly changeless, time would not exist and He would be timeless. But in that case God could not have refrained at  $t = 0$  from creating because  $t = 0$  would not have existed. It does no good to try to

rescue this hypothesis by holding that God in such a timeless state does refrain from creating at  $t = 0$  as well as at every other time, for that is to abandon the hypothesis that God exists temporally prior to creation and that His precreation temporality is a soft fact. It is to confuse (A) with

(A') If God were to refrain from creating, He would be timeless, a counterfactual which is coherent and, I think, true. Thus, apart from backward causation, there is nothing to make time exist in the changeless state of God's existing *sans* creation. Perhaps an analogy from physical time will be illuminating. In standard Big Bang cosmology, the initial cosmological singularity at which the universe, indeed spacetime itself, begins is not conceived to be an instant or any other part of time, but rather to constitute a boundary to time. Thus, it cannot be said technically to be earlier than the universe, and yet it is causally prior to the universe. It is clearly distinct from a terminal cosmological singularity, which represents the terminal boundary of a universe in gravitational self collapse. Although the physical grounds for regarding such singularities as constituting boundaries to, rather than points of, spacetime are inapplicable to the notion of metaphysical time, nonetheless they do serve as an illustrative analogy to the state of God's existing *sans* the universe. Perhaps we could say that the envisioned state is a boundary of time which is causally, but not temporally, prior to the origin of the universe.

Or consider quantum gravitational models of the origin of the universe such as the Hartle-Hawking or Vilenkin models. In such models real spacetime originates in a region in which time is imaginary (that is, the time variable takes on imaginary values) and so is indistinguishable from space. The timeless fourspace is causally prior to our real spacetime and is, indeed, usually said to have existed prior to the Planck time (10<sup>-43</sup> sec. after the singularity in the standard model). Such an interpretation of this region drew charges of incoherence from my collaborator Quentin Smith:

If the 4 dimensional space does not possess a real time value, how can it stand in relation to . . . spacetime of being earlier than it? If the four dimensional space is in real . . . time, then it is not really earlier than, later than, or simultaneous with the . . . spacetime manifold. [31]

Smith's concern here is precisely the one which occupies us: can this timeless region exist chronologically prior to the inception of real time? After lengthy conversations with the late Robert Weingard, Smith retracted his objection. In a paper read before the Philosophy of Time Society in 1993, Smith solves his objection by maintaining that the timeless four space is topologically, not temporally, prior to classical spacetime. [32] As one regresses in time prior to the Planck time, the metric of spacetime gradually dissolves until only the topological properties of spacetime remain. Topologically prior to this metrically amorphous region lies the fourspace in which time is imaginary. Whether such a conception of physical time is tenable is a moot question. [33] But it again suggests that it is possible to conceive of realities which are causally prior to space and time without being

literally earlier than them. Perhaps God's atemporal phase of life is topologically, but not temporally, prior to His temporal phase.

All this has been said in defense of the coherence of the position that God exists timelessly *sans* creation and temporally from the moment of creation, a view Thomas Senor has called "accidental temporalism." [34] But now I should like to offer a positive argument in favor of such a position. The argument is predicated upon God's existing changelessly *sans* the universe (a premise justified by *kalam* arguments against the infinitude of the past). [35] We are to envision a state which, whether temporal or atemporal, must be absolutely changeless. But, I maintain, such a state is most plausibly regarded as timeless. On a substantialist view of time, time can exist without change. But even on a substantialist view, there is no good reason to think that time could not have a beginning. So in the utter absence of change, there is just no reason to consider time as existent for God *sans* the world. He seems as timeless in such a state as He would be in a world in which He refrains from creation and time never exists. On a relational view of time, God's timelessness in such a changeless state becomes even more perspicuous. For "before" and "after" do not exist in the complete absence of events. Now ever since the groundbreaking analysis of Sydney Shoemaker [36] it has become commonplace to assert that relationalism can admit time without change. But Shoemaker's *Gedankenexperiment* envisioned temporal intervals without change bounded by earlier and later events, a scenario which is not parallel to God existing changelessly *sans* the universe. Thus, W. H. Newton-Smith, reflecting on Shoemaker's analysis, contends that there is a period of time between events  $E_1$  and  $E_2$  only if relative to these events it is possible for some event to occur between them; when Newton-Smith comes to Kant's First Antinomy, he maintains that the possibility of events before a given event does not imply the actuality of times prior to the given event. [37] The mere possibility of events prior to a first event shows only that there might have been times before  $t_0$ , but hardly suffices for the existence of actual time prior to the first event—there must be actual events in relation to which temporal vacua can be identified. Similarly, Graeme Forbes crafts a relational theory of time using the device of branching worlds which allows for the existence of empty time between events in a world  $W$  and even after events have run their course in  $W$ , in virtue of reference to the events of branching worlds where events do occur at times which are empty in  $W$ . [38] Forbes's account rules out worlds in which time passes even though no events ever occur as well as worlds featuring an empty time before the course of events begins. Le Poidevin formulates relationalism as the doctrine that there exists a time  $t$  which is before/after some actual event  $e$  if it is possible that there should exist an event  $n$  units before/after  $e$ . [39] But this formulation makes relationalism a triviality, for it amounts to saying, since the units referred to must be temporal units, that time exists before/after  $e$  if time exists before/after  $e$ . [40] If we say that time exists before/after  $e$  if it is possible that an event occurs before/after  $e$ , then we rule out the possibility of a beginning (and end) of time by definition. Thus, relational views of time, while able to accommodate time without change subsequent to the occurrence of a first event, make

no room for the existence of empty time prior to the first event. Indeed, I think we can lay it down as a principle:

P. Necessarily, if a first event occurs, times exist only at or after the occurrence of that event.

Thus, there is no "before" relative to a first event and, hence, no empty time prior to a first event.

Therefore, it seems to me that we have plausible grounds for thinking God to be timeless *sans* creation. The picture of God existing prior to the moment of creation is purely a product of the imagination, however irresistible such a picture may seem. [41] The most plausible position to take with respect to the relation of God and time seems to me to be that God is atemporal *sans* creation and temporal since creation.

### Summary

We have thus seen good reasons to hold to the beginning of time, not only physical time, but God's metaphysical time. The question "Why did God not create the world sooner?" is unanswerable given the infinitude of the past. Since we have good reason to think that the physical universe began to exist and it is implausible to think that it came into existence without a supernatural cause, we therefore have good reason to believe that the past is finite. While the state of affairs of God *sans* creation can be construed as a geometrically amorphous "before" relative to the moment of creation, it is perhaps more plausible, especially on a relational view of time, to take the state of God's existing changelessly *sans* creation as timeless, time springing into being concomitantly with the first event. God's act of creating the world may be taken to be simultaneous with the world's coming into being. The first event is the event of creation, the moment at which the temporal phase of God's life begins.

### Footnotes

[1]

Isaac Newton, *Sir Isaac Newton's 'Mathematical Principles of Natural Philosophy' and his 'System of the World,'* trans. Andrew Motte, rev. with an Appendix by Florian Cajori, 2 vols. (Los Angeles: University of California Press, 1966), 1: 6.

[2]

Ibid., 1: 545.

[3]

Ibid., 1: 546.

[4]

Ibid., 1: 545.

[5]

Ibid., 1: 545.

[6]

Isaac Newton, "On the Gravity and Equilibrium of Fluids," [*De gravitatione et aequipondio fluidorum*] in *Unpublished Scientific Papers of Isaac Newton*, ed. A. Rupert Hall and Marie Boas Hall (Cambridge: Cambridge University Press, 1962), p. 132.

[7]

On Leibniz's relational view, since God is immutable, ". . . if there were no creatures space and time would be only in the ideas of God" (G. W. Leibniz, "Mr. Leibniz's Fourth Paper," in *The LeibnizClarke Correspondence*, ed. with an Introduction and Notes by H. G. Alexander [Manchester: Manchester University Press, 1956], p. 42). Hence, ". . . once it has been shown, that the beginning, whenever it was, is always the same thing; the question, why it was not otherwise ordered, becomes needless and insignificant" (Ibid., pp. 3839). Cf. his later explanation:

"If there were no creatures, there would be neither time nor place, and consequently no actual space. The immensity of God is independent upon space, as his eternity is independent upon time. These attributes signify only [with regard to those two orders of things] that God would be present and coexistent with all the things that should exist. And therefore I don't admit what's here alleged, that if God existed alone, there would be time and space as there is now: whereas then, in my opinion, they would be only in the ideas of God as mere possibilities" (G. W. Leibniz, "Mr. Leibnitz's Fifth Paper," p. 80).

A theistic relationalist who holds to the infinitude of God's past would have to regard God as being in immemorial change, for example, counting down the negative numbers, which Leibniz would reject due to his commitment to divine immutability. The question why God *did not* finish His countdown sooner remains unabated for the relationalist who regards God as being in immemorial change. The substantivalist could see God as either changing or changeless prior to the moment of creation.

[8]

G. W. Leibniz, "Mr. Leibnitz's Third Paper," in *Correspondence*, p. 27.

## [\[9\]](#)

That this is the case is clear from the historical provenance of the question. In the debate between medieval Islamic philosophers and practitioners of *kalam* over the world's eternity, philosophers championing eternal emanation of the world opposed adherents of temporal creation by defying them to explain why God did not create the world sooner. Defenders of *creatio ex nihilo* like alGhazali responded by arguing that time begins at creation, so that the question is meaningless (AlGhazali, *Tahafut alFalasifah*, trans. S.A. Kamali [Lahore: Pakistan Philosophical Congress, 1963], pp. 3536; cf. p. 23). Leibniz himself hints at the real issue when he remarks, "It is a . . . fiction, (that is) an impossible one, to suppose that God might have created the world some millions of years sooner. Those who run into such kind of fictions, can give no answer to one that should argue for the eternity of the world" (Leibniz, "Fourth Paper," p. 38).

The wider context in which the question at issue arose was the emanationist philosophers' challenge to creationists to explain how a first temporal effect could originate from an eternal, changeless cause (Ghazali, *Tahafut*, p. 14). Ghazali argues that (i) God as a free agent cause can initiate new effects in time without any determining conditions, (ii) God wills eternally that a temporally finite effect appear, so that the appearance of the effect involves no change in God and, hence, does not compromise divine timelessness, and (iii) that since time begins at the moment of creation, it is senseless to ask why God did not create sooner. I have found Ghazali's discussion enormously stimulating and profitable. In my own work I have defended both (i) and (iii), but I have argued against (ii) because even if no intrinsic change in God occurred at creation, He would at least change extrinsically and, hence, become temporal.

## [\[10\]](#)

Of course, Kant also believed that the argument for the thesis of his First Antinomy was also rationally compelling; that is precisely why it is an antinomy! My interest in this paper lies solely in assessing the argument which comes to expression in the antithesis; I am not attempting here an exegesis of Kant.

## [\[11\]](#)

Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan, 1933), p. 396 (A427/B455).

## [\[12\]](#)

Ibid., p. 397.

## [\[13\]](#)



Quentin Smith, "The Uncaused Beginning of the Universe," in Wm. L. Craig and Q. Smith, *Theism, Atheism, and Big Bang Cosmology* (Oxford: Clarendon Press, 1993), p. 135.

[\[14\]](#)

Bernulf Kanitscheider, "Does Physical Cosmology Transcend the Limits of Naturalistic Reasoning?" in *Studies on Mario Bung's "Treatise,"* ed. P. Weingartner and G. J. W. Doen (Amsterdam: Rodopi, 1990), p. 344.

[\[15\]](#)

Stephen Hawking and Roger Penrose, *The Nature of Space and Time*, The Isaac Newton Institute Series of Lectures (Princeton: Princeton University Press, 1996), p. 20.

[\[16\]](#)

E. A. Milne, *Relativity, Gravitation and World Structure* (Oxford: Clarendon Press, 1935); idem, "A Newtonian Expanding Universe," *Quarterly Journal of Mathematics* 5 (1934): 6472; W. H. McCrea, "On the Significance of Newtonian Cosmology," *Astronomical Journal* 60 (1955): 271274. See also remarks of H. Bondi, *Cosmology*, 2d ed. (Cambridge: Cambridge University Press, 1960), p. 89; E. L. Schücking, "Newtonian Cosmology," *Texas Quarterly* 10 (1967): 274; Pierre Kerszberg, "On the Alleged Equivalence between Newtonian and Relativistic Cosmology," *British Journal for the Philosophy of Science* 38 (1987): 349.

[\[17\]](#)

Paul Davies, "The Birth of the Cosmos," in *God, Cosmos, Nature and Creativity*, ed. Jill Gready (Edinburgh: Scottish Academic Press, 1995), pp. 89.

[\[18\]](#)

Arthur Eddington, *The Expanding Universe* (New York: Macmillan, 1933), p. 124.

[\[19\]](#)

This objection has been suggested to me in conversation by Quentin Smith.

[\[20\]](#)

Brian Leftow, "Why Didn't God Create the World Sooner?" (preprint).

[\[21\]](#)

Ibid.

[\[22\]](#)

Ibid.

[\[23\]](#)

Ibid. It is not clear to me that God's having waning anticipation is compatible with Leftow's claim that God is infinitely patient.

[\[24\]](#)

Quentin Smith, "Kant and the Beginning of the World," *New Scholasticism* 59 (1985): 345.

[\[25\]](#)

Leftow, "Why Didn't God Create the World Sooner?"

[\[26\]](#)

Alan G. Padgett, *God, Eternity and the Nature of Time* (New York: St. Martin's, 1992), pp. 122146; Richard Swinburne, "God and Time," in *Reasoned Faith*, ed. Eleonore Stump (Ithaca, N.Y.: Cornell University Press, 1993), pp. 204222.

[\[27\]](#)

For critiques see Michael Friedman, "Grünbaum on the Conventionality of Geometry," in *Space, Time, and Geometry*, ed. Patrick Suppes, Synthese Library (Dordrecht: D. Reidel, 1973), pp. 217233; Paul Gordon Horwich, "On the Metric and Topology of Time" (Ph.D. dissertation, Cornell University, 1975), chap. 3; Philip L. Quinn, "Intrinsic Metrics on Continuous Spatial Manifolds," *Philosophy of Science* 43 (1976): 396414; Graham Nerlich, *The Shape of Space* (Cambridge: Cambridge University Press, 1976), chap. 8. These critics argue that continuity of a manifold does entail the metrical amorphousness of that manifold, that we may not equate a metric's extrinsicity with conventionality, that the metric may be intrinsic even in Grünbaum's sense if it is a counterfactual property, and that Grünbaum's attempt to reformulate his argument using a set theoretic analysis is misconceived and irrelevant because a continuous interval has a size intrinsically iff each subinterval does.

[\[28\]](#)

Swinburne, "God and Time," pp. 218-219. The mention of an end is gratuitous; metrically amorphous time could end at the moment of creation, which is a more plausible view than Padgett and Swinburne's metric conventionalism concerning postcreation time.

[\[29\]](#)

See discussion in William Lane Craig, *Divine Foreknowledge and Human Freedom*, Brill's Studies in Intellectual History 19 (Leiden: E. J. Brill, 1991), pp. 150-156.

[\[30\]](#)

Thomas Flint, "Middle Knowledge and the Doctrine of Infallibility," in *Philosophical Perspectives*, vol. 5: *Philosophy of Religion*, ed. James Tomberlin (Atascadero, Cal.: Ridgeway Publishing, 1991), pp. 373-393.

[\[31\]](#)

Quentin Smith, "The Wave Function of a Godless Universe," in *Theism, Atheism, and Big Bang Cosmology*, p. 318.

[\[32\]](#)

Quentin Smith, "Temporal Becoming and Physics," Philosophy of Time Society meeting, Central Division Meeting of the American Philosophical Association, Chicago, December 29, 1993.

[\[33\]](#)

See discussion in William Lane Craig, "Theism and the Origin of the Universe," *Erkenntnis* 48 (1998): 475-50.

[\[34\]](#)

Thomas Senor, "Divine Temporality and Creation *ex Nihilo*" *Faith and Philosophy* 10 (1993): 88.

[\[35\]](#)

See discussion in Craig and Smith, *Theism, Atheism, and Big Bang Cosmology*.

[\[36\]](#)

Sydney Shoemaker, "Time without Change," *Journal of Philosophy* 66 (1969): 363-81. Shoemaker envisioned a universe which underwent periodic partial "freezes" which were staggered in such a way

that its denizens could calculate that every few years the entire universe would be frozen for a determinate time.

[\[37\]](#)

W. H. Newton-Smith, *The Structure of Time*, International Library of Philosophy (London: Routledge & Kegan Paul, 1980), pp. 444-6, 104.

[\[38\]](#)

Graeme Forbes, "Time, Events, and Modality," in *The Philosophy of Time*, ed. Robin Le Poidevin and Murray MacBeath (Oxford: Oxford University Press, 1993), pp. 80-95.

[\[39\]](#)

Robin Le Poidevin, "Relationism and Temporal Topology: Physics or Metaphysics?" in *Philosophy of Time*, pp. 150-53.

[\[40\]](#)

If we interpret Le Poidevin's formulation of the consequent to mean that it is possible that  $n$  units of time exist before/after  $e$  along with some event at the relevant time (rather than that it is possible that an event should exist at an actual position  $n$  units before/after  $e$ ), then we have declared by fiat that time is infinite, a strange way of doing metaphysics! Le Poidevin qualifies his formulation by adding to the consequent "compatible with no disturbance of the actual temporal relations between actual events." But this addendum rules out *a priori* that time could have any different extent than it actually has. For example, if time begins at  $t_1$ , then it is not possible that an event should occur at  $t_0$ , since then  $t$  would stand in the *later than* relation to  $t_0$ , which relation it actually lacks; similarly,  $t_1$  would then stand in the relation *between* with respect to  $t_0$  and  $t_2$ , in which it does not stand.

[\[41\]](#)

A point ably emphasized by Ghazali, *Tahafut*, p. 43.