Some Emendations to Leftow's Arguments About Time and Eternity

I am sympathetic to the view that, if God exists, then God is timeless. Consequently, I am (conditionally!) sympathetic to the project which Brian Leftow undertakes in <u>Time and</u> <u>Eternity</u> (Ithaca: Cornell University Press, 1991). However, it seems to me that the case which Leftow makes for God's timelessness is weakened by a number of bad arguments and dubious distinctions which he uses in developing his case. The aim of this note is to draw attention to some of the arguments and distinctions, and to suggest ways in which the ensuing difficulties can be circumvented.

I

At p.23, Leftow argues that, as a matter of physical necessity, no parcel of matter follows a discontinuous spatial path. He then uses this conclusion as a premise in a further argument to the conclusion that no non-theistic scenarios involving contingently existing entities could yield a sure way to gain evidence that a second time series exists. I think that there may be non-theistic scenarios involving contingently existing entities which yield ways of gaining evidence of other time series—it could be for example that our best theories about the very early universe entail that there are many disconnected regions of spacetime, each with its own time series—so I think that the further argument cannot be any good. However, the point I want to insist on here is that his argument for the conclusion that, as a matter of physical necessity no parcel of matter follows a discontinuous spatial path, is seriously flawed.

Leftow's argument is as follows: Consider an object which moves from P1 to P4 without following a continuous spatial path. Somewhere between P1 and P4, there are two points P2 and P3 such that the object 'jumps' from P2 to P3 without occupying any continuous sequence of places between them. For convenience, suppose that this 'jump' is the only discontinuity in the object's trajectory. If the instant at which the object reaches P2 is identical to the instant at which the object reaches P3, then the object is wholly in two places at once. But that is impossible. Hence, there must be some temporal gap between the object's arrival at P2 and its arrival at P3. During this temporal gap, there is no place at which the object is located. But, if there is a time (interval) at which a physical object is not located anywhere, then at that time (during that interval) the object does not exist. But it is a matter of natural law—physical necessity—that objects do not cease to exist and then pop back into existence some time later. QED.

There are various things which one might dispute in this argument. The phenomenon of quantum tunnelling—which does apply to macroscopic objects, though the probability is *extremely* small—suggests that it is quite compatible with what is plausibly taken to be natural law, that objects do have spatiotemporal gaps in their worldlines. Even if this were not so, it is hard to see how one could be very confident that discontinuous time travel is prohibited by natural law (physical necessity)—perhaps it is just a matter of boundary conditions that there is (or appears to be) no discontinuous time travel in our world. And so on.

However, the crucial point on which I wish to insist is that a key move in the argument is invalid, and relies on an important misunderstanding about the nature of continuous motion.

Leftow assumes that there must be distinct points P2 and P3 such that the object 'jumps' from P2 to P3 without occuping any points in between. And, on the basis of this assumption, he infers, from the claim that the object cannot be simultaneously at P2 and P3, that there must be a temporal gap between the object's arrival at P2 and its arrival at P3. But the assumption is surely mistaken. If an object is to follow a discontinuous trajectory with a single spatial 'jump' but no temporal 'jump', then one part of the trajectory will be an open interval and the other will be a closed interval. (Consider an ordinary continuous motion, and make a 'cut'. If the point at which the 'cut' is made is assigned to just one of the two parts which result, then one of the parts will be open and the other will be closed. The assumption that each point has an immediate successor—something which is certainly not true in the continuous case.) To think that this is impossible is just tacitly to deny that genuinely continuous motion is possible.

Leftow's argument has impressive precursors. Thus, for example, we find Aristotle in the *Physics*, VIII, chapter 8, 262a19–263a3, arguing in support of the claim that, when Achilles is travelling continuously, we must not say that he reaches or arrives at any point which he passes through, as follows: If Achilles arrives at a point in his journey, then he clearly also leaves the point, for otherwise he would remain there, and hence never reach the tortoise. But at the time when Achilles has arrived at the point, he is at the point; whereas at the time at which he has left the point he is not at it, but beyond it. So the time when he has arrived, and the time when he has left are not the same time—and consequently they must be separated by an interval. But during that interval Achilles must evidently be at the point, since he has arrived at it but has not yet left it, and so we may conclude that if Achilles reaches or arrives at any point in his journey, he also rests at it. QED. (I have closely followed the exposition of

the argument in D. Bostock "Aristotle, Zeno and the Potential Infinite" *Proceedings of the Aristotelian Society*, 72, 1972/3, p.42.) The problem here is that we need to think of the collection of times at which Achilles has left the point as an open interval; in that case, there need be no interval between the time in question and all the times which are later than it. Plainly enough, Aristotle's argument is a close cousin of Leftow's—both arguments depend upon not taking the notion of continuity seriously enough.

Since it adds nothing to Leftow's case for God timelessness to insist that, as a matter of physical necessity, no parcel of matter follows a discontinuous spatial path, there is no reason why he should not just drop attempts to argue for this claim; if he still wishes to defend it, then he needs to find a completely different line of support.

Π

At p.50, Leftow begins his discussion of 'the logic of eternity' with the suggestion that he needs to—and that he can—defend the consistency of the following principle:

(T) 'God exists' is true, and yet for any t, 'God exists at t' is false.

Given the disquotational properties of the truth predicate, there seems to be an immediate difficulty with the suggestion that (T) is defensible. After all, it is clear that if (T) is defensible, then so is the following principle:

(T') At any time t, 'God exists' is true, and 'God exists at t' is false.

But if at any time t, 'God exists' is true, then, by the disquotational properties of the truth predicate, at any time t, God exists—and hence, by what seems like a very small step, God exists at t for any time t. But then, using the disquotational properties of the truth predicate again, we have that, for any time t, 'God exists at t' is true. And so, just using the disquotational properties of the truth predicate (and the very small step) we can derive from (T') the contradiction that 'God exists at t' is both true and false.

There is not much to object to here. One might claim that, even though 'God exists' is true, there is no time at which 'God exists' is true. But that seems desperate. From my point of view, here and now, there is no difference between the class of English sentences which is true, and the class of English sentences which is true now. If 'God exists' does not belong to the class of English sentences which is true now, then God does not exist. (Think how strange it would be to insist that the sentences of English expressing truths of mathematics do not belong to the class of English sentences which express truths now just because—we may suppose—the truthmakers for these claims are not entities which exist in actual spacetime. The truths of mathematics always have been, are, and always will be true even if they are not made true by entities belonging to the actual spatio—temporal manifold.) Since objecting to the disquotational properties of the truth predicate seems even worse, this only leaves the very small step. But how could one hope to argue that, say, 'At t, God exists' and 'God exists at t' are not merely trivial variants of the same claim?

Of course, there is an important distinction to be made here, between sentences whose truthmakers are denizens of actual spacetime, and sentences whose truthmakers are not denizens of actual spacetime. Moreover, we would decide, say, that 'At t, p' is true provided that 'p' is made true by some truthmaker or other (regardless of whether that truthmaker belongs to actual spacetime), but that 'p at t' is only true if 'p' is made true by a truthmaker which belongs to actual spacetime. Under this decision, (T) and (T') are both consistent and, in the case that there is a timeless God, both will turn out to be true. However, this decision is certainly not supported by ordinary usage, and it leads us to say things which sound very strange indeed. Surely a better suggestion is either to introduce some new terminology—perhaps we could insist on a distinction between what is true *at* a time and which is true *of* a time (the latter being the one which requires truthmakers belonging to actual spacetime)—or else simply to insist that, in the current context, we need to insist on suitable qualifying tags for all claims about truths about times where there might be confusion. ('2+2=4 is true now, but not in virtue of anything which belongs to the actual spatiotemporal manifold.' 'God exists now, but not in virtue of his belonging to the actual spatiotemporal manifold'. And so on.)

Given that what Leftow needs is a language in which he can talk sensibly about a timeless God, there is clear reason to make use of the kinds of qualifying tags mentioned above (since these spell out exactly what is at issue). On the other hand, it is quite unclear how anything other than a love of obscurity and the sound of apparent paradox could lead one to embrace the suggestion that you need to show how it can be that some sentences are true but not true at any times. Since the intuition is that some sentences are true, but they are not made true by what happens in time, why not just speak plainly and call a spade a spade? At pp.137ff., Leftow offers two analogies and two arguments on behalf of the claim that there could be a partless extension (or, any rate, that it is possible to make sense of the idea of a partless extension). It seems to me that the notion of partless extension is simply incoherent, and hence that the analogies and arguments which Leftow offers are no good. I shall begin by offering an argument for the incoherence of the notion of partless extension.

The notion of extension is (roughly) correlative with the notion of measure: the volumes of extended things are measureable. It may be that the volumes of some extended things have measure zero—i.e. it may be that it is not just points (partless things) which have measure zero—but we can certainly say that things which have volumes with non–zero measure are extended. Moreover, it is simply an analytic consequence of measure theory that volumes with non–zero measure have volumes with non–zero measure as proper parts. And so it follows immediately that the notion of partless extension—i.e. of a volume with non–zero measure which has no volumes with non–zero measure as proper parts—is simply incoherent. (This argument is a little bit quick; it ignores certain complications caused by the fact that there are non–measureable volumes. However, I don't think that we need to worry about these complications here. The argument also ignores the case of extended things whose volume has measure zero—but it is clear that exactly the same considerations apply in this case.)

Leftow's first analogy (pp.137ff.) involves a 'necessarily immutable atom' which 'necessarily occupies a particular volume of space'. He suggests that, in this case, the atom is clearly extended, and yet the volume which it occupies is indivisible and hence partless. However, it seems to me that this argument illegitimately conflates the properties of the atom with the properties of the volume which it occupies. Even if we can make sense of the idea that an object might necessarily occupy a particular volume of space—perhaps all universes have to be spherical, and they have to have a 'God atom' at the centre—it is just a mistake to suppose that such an occupied volume of space is indivisible because the thing which occupies it is. As I suggested above, it is analytic that a volume with non–zero measure has parts, even if it happens that the volume is occupied by an entity which is physically (or metaphysically) indivisible. Moreover, this objection does not depend upon adopting a substantivalist conception of spacetime—even on relationalist accounts of spacetime, it can be true that a physically or metaphysically indivisible entity has spatiotemporal parts.

Leftow's second analogy (pp.140ff.) involves the notion of a 'chronon'—a unit of time than which there can be none smaller. He suggests that 'chronons' as typically conceived are not instants: they are characteristically supposed to have some very small duration (perhaps about 10⁻²⁴ seconds). Consequently, he claims that the 'chronon' is an example of the consistent conception of a partless extension. I do not think that this can be right. If there are 'chronons', then time is discrete, and the 'chronon' provides the natural unit of time: 1 second is equal to about 10²⁴ 'chronons'. However, under this discrete measure, it is not true that an entity with 'volume' measure one has parts—the 'chronon' is not extended and it is partless. It is only if one incoherently combines elements of our distinct (and disjoint) conceptions of discrete and continuous measures that one can arrive at the idea of an extended temporal atom.

Leftow's first argument (p.142f.) on behalf of the notion of partless extension attempts to establish that eternity cannot have parts (since, within eternity, nothing can overlap anything else). However, this argument does nothing at all to advance the cause of partless extension

unless it can also be established that eternity is extended. Leftow suggests that, since God has experiences in eternity, eternity must be extended—but that suggestion relies on the assumption that experiences require extension, and, at the very least, that is an assumption which requires further justification. (There is also the threat that any justification which could be required would also establish that experiences have parts—indeed, if my earlier argument is any good, that is bound to be the case.)

Leftow's second argument (p.143f.) on behalf of the notion of partless extension takes off from some observations about the concept of 'the specious present'. According to Leftow, 'we seem to experience a duration all of which is present'. Moreover, 'there may be .. an atomic length of human experiences such that no human experience can be shorter'. Given that these ideas are coherent, 'perhaps we can conceive of an eternal specious present as a necessarily unique, atomic-length, sole eternally enduring thing that exhausts eternal duration'. But if 'the eternal specious present' is 'atomic-length', then we must be supposing that we have a discrete metric, and hence we must be supposing that 'the eternal specious present' have no duration. So the adduced observations about 'the specious present' can lend no support to the conclusion which Leftow wishes to establish. Moreover, the data on which Leftow is relying seem to me to be doubtful. I do not think that we seem to experience a duration all of which is present; rather—if I can put it like this—we seem to experience elapsing durations. When I see something in motion, it isn't that I seem to see it here and there all at once, even if I do seem to directly experience its motion. That is, 'the specious present' seems to have parts which are given in experience (even in what we are naturally inclined to call 'a single experience'). And, even if this is denied, there is at least room for suspicion that Leftow's suggestion trades on a confusion between (i) the 'experienced' time of a 'specious present' (how much time it seems to occupy to the subject of the experience);

and (ii) the 'external' time which is occupied by an experience (how much time the experience actually occupies). (There are, of course, many difficulties with the idea that we can assign 'external' measures to experiences—cf. the critique of 'the Cartesian Theatre' in D. Dennett *Consciousness Explained* London: Penguin, 1991.)

I think that it is just a mistake to suppose that eternity must have a 'partless duration'. Either eternity has duration, in which case it is not partless, or else it has neither duration nor temporal parts. Both possibilities are defensible, but it is no part of my current brief to try to defend either of them here.

IV

At pp.167ff., Leftow discusses a series of modifications of the Stump–Kretzmann definition of the notion of ET–simultaneity. Since Leftow ultimately aims to do without the notion of ET–simultaneity, he is happy to conclude that he does not know whether there is any way of 'saving' it. However, it seems to me: (i) that there is a straightforward definition of the notion of ET–simultaneity to be had; but (ii) that this notion is not of any use in helping to clarify or explain the claim that God is timeless.

The initial definition which Stump and Kretzmann give is as follows:

- (ET) For every x and for every y, x and y are ET-simultaneous iff:
 - (i) either x is eternal and y is temporal, or vice versa; and

- (ii) for some observer, A, in the unique eternal reference frame, x and y are both present—i.e. either x is eternally present and y is observed as temporally present, or vice versa; and
- (iii) for some observer, B, in one of the infinitely many temporal reference frames, x and y are both present—i.e. either x is observed as eternally present and y is temporally present, or vice versa.

Taking this definition at its word, its most obvious shortcoming is that it entails that the only times which can be 'present' to eternity are those in which there are observers. Pick some time at which there are no observers—indeed, pick a time very close to the big bang at which it is physically impossible for there to be observers: surely it ought not to be a consequence of any account of the relations between our spatio–temporal realm and the eternal realm that this time is not 'accesible' to eternity.

Typically, discussions of ET-simultaneity do not take the definition at its word: by 'observer', we should be taken to mean 'potential observer' or 'possible observer', or the like. However, it is not clear that this understanding of the definition helps—for it seems plausible to think that there are many regions of space-time in which there could not be observers (e.g. at the centre of stars, in regions subject to strong gravitational tidal forces, in regions near singularities—including the initial singularity at the Big Bang—and so on). Moreover, even if this were not so, it surely <u>could</u> have been the case that God made a universe in which there could be no observers, and yet for which all space-time points were 'present' to God at eternity. Since the notion of ET-simultaneity ought to apply in that case, there is clearly something wrong with the definition (and with all subsequent amendments discussed by Stump and Kretzmann, Leftow, and others). It seems to me that this defect in the Stump–Kretzmann definition stems from a misunderstanding about the role of 'observers' in early formulations of the theories of relativity. While it is true that much of the early discussion of the theories of relativity is framed in terms of 'observers' and 'coordinates' and 'frames of reference', it has long been known that it is possible to frame these theories in 'coordinate–free' versions. Moreover, it is very tempting to go on to claim that the 'genuine' or 'fundamental' properties and relations are the ones which appear in these 'coordinate–free' formulations. One consequence of this claim is that certain properties and relations which were previously supposed to be 'genuine' and 'fundamental' turn out not to be so—for example, there is no 'coordinate–free' notion of simultaneity in the theories of relativity.

Given that we are searching for a 'genuine' or 'fundamental' relation between the spatio– temporal and the eternal, we should not be looking for any kind of relation which is framed in terms of 'observers' (and 'coordinates' and 'frames of reference' and the like)—rather, we should be looking for a 'coordinate–free' relation. Such an account of the relation between the temporal and the eternal—i.e. of the notion of ET–simultaneity—is not hard to find:

(ET*) For any x and y, x and y are ET–simultaneous iff one of x and y is (spatio–)temporal and the other is eternal.

This is surely just the definition which is required: every (spatio–)temporal point is 'present' to eternity; and eternity is 'present' to every (spatio–)temporal point.

Of course, this definition does not 'illuminate' the relation between the temporal and the eternal; no-one who is mystified by the claim that there might be non-spatio-temporal entities will suppose that this definition improves understanding. But exactly the same point could be made about the original definition (since 'eternally present', 'temporally present', 'observed as temporally present' and 'observed as eternally present' all require further elucidation in this context). Given that the aim is just to correctly characterise the relation between the eternal and the temporal, (ET*) does the job. At any rate, it seems clear that it does every job that the original definition—and any of the subsequent amendments—was qualified to do, but without relying on any misunderstandings about the proper formulation of theories of relativity. (For a somewhat similar critique of accounts of ET-simultaneity—though without any mention of theories of relativity—see Richard Swinburne (1994) <u>The Christian God</u> Oxford: Clarendon, pp.248–9.)

V

One of the most controversial aspects of Leftow's book is his treatment of spatial contiguity. At p.190 and p.225, he offers the following definition of spatial contiguity (I have amended the definition slightly to remove some logical difficulties):

(SC) For any x which has or is a location in space and any y, x and y are spatially contiguous just in case there is no space between x and y.

At pp.222ff, Leftow uses this definition to establish what he calls 'the Zero Thesis':

(ZT) The distance between God and every spatial creature is zero.

This thesis seems attractive because it can serve as a premise in an argument for the omnipresence of God; indeed, according to Leftow, it seems to offer the only possible literal understanding of the omnipresence of a non–spatial God. (John Earman seems to agree. See his *Bangs, Crunches, Whimpers and Shrieks* New York: Oxford University Press, 1995, Chapter 7, fn.9, and the paragraph to which this note is attached.)

According to the standard definition of a distance function (or metric), we have that, for any points x and y, d(x,y) = 0 iff x=y. There are various options for extending this definition to give distances between entities larger than points; we need not worry about the details of these options here. However, the crucial point to note is that it is built into the foundations of measure theory that distance relations only hold between entities which belong to a single metric space. Moreover, the reason why this assumption is built into the foundations of measure theory is because it is one of the most fundamental commonsense assumptions about distances—if you are talking about relations between entities which do not belong to a single metric space, then you cannot be talking about distance relations. (How far is it from red to yellow? Is cleanliness next to godliness? Which is the nearest possible fat man in that doorway?) Consequently, it is simply analytic that two entities can only be (spatially) contiguous if they belong to a single metric space.

Leftow acknowledges that his account of spatial contiguity appears to be in conflict with commonsense, but he claims that this appearance may be generated by a confusion. '... the Zero Thesis is problematic only if a zero distance is a positive distance. But a distance of zero

is just an absence of positive distance.' (p.225) That isn't right, at least according to commonsense and standard mathematics. Look again at the highlighted feature of the familiar definition of a distance function: for any x and y, d(x,y) = 0 iff x=y, which entails that for any x, d(x, x) = 0. There is a single notion here—'being at a given distance from'—which applies in just the same sense in degenerate and non–degenerate cases. Commonsense agrees that to be at zero distance from something is to fail to be at some non–zero distance from that thing—but this does nothing at all towards establishing that to fail to be at some non–zero distance from a thing is to be at zero distance from it (because of the requirement that things which stand in distance relations must belong to a single metric space).

Perhaps Leftow might reply that there is nothing to stop him from indulging in a bit of linguistic reform: why shouldn't we henceforth insist that everything which is 'outside' spacetime is at zero distance from everything which is 'inside' spacetime? Of course, this insistence will have other counterintuitive consequences—distance functions ordinarily obey a triangle inequality which will entail that all things which are 'outside' spacetime are at zero distance from each other unless we put further restrictions on our definition—but we could no doubt learn to live with this. However, the crucial question is: why bother? How does it advance our understanding of *anything* to indulge in this bit of linguistic reform? Since it is clear that this 'literal' understanding of the notion of omnipresence has nothing at all to do with traditional understandings of that notion, the most that this manouevre can achieve is to preserve the *letter* of traditional doctrine. But surely it would not be worth needlessly complicating fundamental mathematical theories in order to do that. Wouldn't it be better simply to say that God's omnipresence is to be understood in terms of the fact that all spacetime points are 'present' to God? Won't traditional theists be obliged to say something like this, in order to avoid falling into pantheism?

(There are other places where Leftow seems to have problems with 'degenerate' relations. For example, at p.289, he claims that if a relational theory of time holds true in a one-state universe, then 'there is literally no time at which [the single event] occurs'. But that is absurd: in this degenerate relational theory, there is a single instant at which the sole event occurs we might identify that instant with the set which contains that event, as is done in some relational theories, or we might proceed in any of a number of other familiar ways.)

VI

The above discussion does not come close to exhausting the places where I would want to dissent from Leftow's arguments. (Perhaps I can mention two more which are particularly important. At p.288, Leftow argues that, since every achieving of understanding could be a first event in a universe, and every achieving of understanding could be a last event in a universe, it follows that it is possible that there be an achieving of understanding which is both a first and a last event in a universe. This argument is plainly invalid: I could be the only person in the universe, or I could be one of thousands—but it is not possible that I am both the only person in the universe and also one of thousands. At p.258, Leftow argues against Lewis' analysis of 'might'-counterfactuals in terms of 'would'-counterfactuals: 'Tomorrow I will walk through my front door. I may then turn right and I may then turn left. But though I may do either, there is just one that I will do—say, turn left. Suppose now that a slightly different future were going to come about instead, one in which I do not leave the house at all tomorrow. It would then be the case that had the world been slightly different and had I been

going to go out tomorrow, I might have turned right and I might have turned left, and in fact I would have turned left.' This argument is unpersuasive: for there is no reason at all to suppose that our world is a near-neighbour *from the standpoint of* nearby worlds. Who knows what counterfactuals will be true in that slightly different future in which I do not leave the house tomorrow. In particular, given that I am free to go left and free to go right, why won't it be that there are equally close alternatives in which I go left and in which I go right, so that there is nothing which I *would* do were I to leave the house?) Moreover, there are numerous other controversial doctrines on which Leftow insists, but of which I want no part—e.g. the doctrine that there are degrees of existence. (Surely it would be better to say that there are degrees of perfection amongst things, and leave it at that.) I can't hope to discuss everything here.

However, all of this disagreement should not be taken to be an argument against the worth of Leftow's book. The historical discussions in the book are very illuminating, and a large part of the case for God's timelessness is very well made (in Chapter 12). There are various reasons why one might one to say that God is timeless, and Leftow has a good discussion of many of them.

Nonetheless, there is a general point of criticism which seems worth making. If it is really true that an understanding of God's timelessness requires so many bizarre doctrines—degrees of existence, partless extension, the Zero Thesis, Principle T, and so on—then the upshot is likely to be a *reductio* of the claim that God is timeless, and perhaps also one horn of an argument by dilemma against the existence of God. (Either God is timeless or God is not timeless) For this reason, it seems to me that theists ought to look favourably on attempts to explain how God could be timeless which do not invest in these doctrines.

Of course, any explanation of how God could be timeless faces formidable difficulties (particularly if one insists on peculiarly Christian doctrines like the incarnation and the trinity). However, the outlines of the 'explanation' seem clear enough. Think of the universe as a complete spacetime manifold. Think of God as a being which is not located in the universe, and which does not overlap any of the parts of the universe. Do not think that there is a background spacetime within which both God and the universe are located. There can be a background framework of external relations—indeed, there must be, since we want to insist on causal relations between God and the universe. However, these external relations are neither spatial, nor temporal, nor spatiotemporal. And so on.

Plainly, this sketch is the merest beginnings of an outline of an account of a timeless God. Perhaps there is no way in which it can be consistently developed. However, if it can be, then the obvious way in which to defend the intelligibility of the claim that God is timeless is simply to develop the account. In general, there is not much more that one can do in endeavouring to defend the coherence of a claim than to give a detailed description of a model in which the claim is true. Put in enough detail without threatening consistency, and things begin to look pretty good. I don't see why the claim that it is coherent to suppose that God is timeless is not susceptible of this kind of defence. Moreover, I don't see how else one could hope to mount a really compelling argument for the claim that it is coherent to suppose that God is timeless.