

TIME, TENSE, AND ETERNITY

“God,” declares the prophet Isaiah, “is the high and lofty One who inhabits eternity” (Is. 57.15). But being a prophet and not a philosophical theologian, Isaiah did not pause to reflect upon the *nature* of divine eternity. Minimally, to be eternal means to exist without beginning and end. To say that God is eternal means minimally that He never began to exist and will never cease to exist. To exist eternally is to exist permanently.¹

There are, however, at least two ways in which something could exist eternally. One way would be to exist omnitemporally throughout infinite time. In this case God would have an immemorial and everlasting temporal duration. The other way in which a being could exist eternally would be by existing timelessly. In this case God would completely transcend time, having neither temporal location nor temporal extension.

Philosophical theologians have been sharply divided with respect to God’s relationship to time. What are the principal arguments which they have offered for divine timelessness and temporality?

Arguments for Divine Timelessness

Argument from Simplicity or Immutability. Traditionally Christian theologians like Thomas Aquinas argued for God’s timelessness on the basis of His absolute simplicity and immutability (*Summa theologiae* 1a. 10. 3). The argument can be simply formulated. As a first premiss, we assume either

- 1. God is simple
- or
- 1’. God is immutable.

Then we add

2. If God is simple or immutable, then He is not temporal, from which it follows that

3. Therefore, God is not temporal.

Since temporality and timelessness are contradictories, it follows that

4. Therefore, God is timeless.

I agree that God's timelessness can be deduced from either His simplicity or immutability. Is this a good reason for thinking that God is timeless? That depends on whether we have any good reason to affirm (1) or (1'). Here we run into severe difficulties. For doctrines of divine simplicity and immutability which are sufficiently strong to support divine timelessness are even more controverted than the doctrine of divine timelessness itself. Philosophically there seem to be no good reasons to embrace these doctrines and weighty objections lodged against them.² These cannot be discussed here; the point is that (1) and (1') are even more difficult to prove than (4), so that they do not constitute good grounds for believing (4).

Argument from Divine Knowledge of Future Contingents. Many thinkers have argued that God's knowledge of future contingent events, for example, future human free actions, implies divine timelessness. The reasoning seems to go as follows:

5. A temporal being cannot know future contingent events.
6. God knows future contingent events.
7. Therefore, God is not a temporal being.

Again, if God is not a temporal being, then it follows that God is timeless.

Despite the denial of (6) on the part of a wide range of contemporary thinkers from process theologians to so-called “open” theists, a biblical doctrine of divine omniscience makes (6) incumbent upon an orthodox theologian.³ The argument hinges, therefore, on the truth of (5). On behalf of (5) it is usually claimed that contingent events, not being deducible from present causes, can be known only insofar as they are real or existent. Given (6), it follows that future contingent events are real or existent for God. Defenders of divine timelessness such as Boethius, Anselm, and Aquinas thus typically maintained that all events in time are real to God and therefore can be known by Him via His *scientia visionis* (knowledge of vision).

How can we make sense of this claim? The most plausible move for the defender of divine timelessness to make will be to hold that the four-dimensional space-time manifold exists tenselessly and that God transcends that manifold. A good many physicists and philosophers of time and space embrace such a tenseless view of time (spacetime realism). Such a view makes sense of the traditional claim that all events in time are present to God and therefore known to Him via His *scientia visionis*.

But is spacetime realism a necessary condition of God’s knowledge of future contingents? I think not. In assessing the question of how God knows truths about temporal events, we may distinguish two models of divine cognition: the *perceptualist* model and the *conceptualist* model. The perceptualist model construes divine knowledge on the analogy of sense perception: God looks and sees what is there. Such a model patently underlies the classic doctrine of *scientia visionis*. Absent a tenseless theory of time, the perceptualist model of divine cognition does encounter real difficulty concerning God’s knowledge of future contingents, for, if future events do not exist, there is nothing there to perceive.⁴

By contrast on a conceptualist model of divine knowledge, God does not acquire His knowledge of the world by anything like perception. His knowledge of the future is not based on His “looking”

ahead and “seeing” what lies in the future (a terribly anthropomorphic notion in any case). Rather God’s knowledge is more like a mind’s knowledge of innate ideas. It is therefore inappropriate to speak of God’s *acquiring* knowledge at all. Rather as an omniscient being, God has essentially the property of knowing all truths; there are truths about future events; *ergo*, God knows all truths concerning future events. So long as we are not seduced into thinking of divine foreknowledge on the model of perception, it is no longer evident why knowledge of future contingents should be impossible.

We can go further, however. For the doctrine of middle knowledge (*scientia media*) is a version of the conceptualist model which allows us to say considerably more about the basis of God’s foreknowledge of future contingents. Divine foreknowledge is based on (i) God’s middle knowledge of what every creature would freely do under any circumstances and (ii) His knowledge of the divine decree to create certain sets of circumstances and to place certain creatures in them. Given middle knowledge and the divine decree, foreknowledge follows automatically as a result without any perception of the created world. This complex and interesting doctrine must be pursued at another time.

In sum, the argument from God’s knowledge of future contingents is inconclusive, since a conceptualist model of divine cognition remains a viable alternative to perceptualist accounts.

Argument from Special Relativity. A third argument for divine timelessness arises from the concept of time in Einstein’s Special Theory of Relativity (STR). According to Einstein’s theory, there is no unique, universal time and so no unique, worldwide “now.” Each inertial frame has its own time and its own present moment, and there is no overarching, absolute time in which all these diverse times are integrated into one. So if God is in time, then the obvious question raised by STR is: *Whose time is He in?* The defender of divine

timelessness maintains that there is no acceptable answer to this question.

We can summarize this reasoning as follows:

8. STR is correct in its description of time.
9. If STR is correct in its description of time, then if God is temporal, He exists in either the time associated with a single inertial frame or the times associated with a plurality of inertial frames.
10. Therefore, if God is temporal, He exists in either the time associated with a single inertial frame or the times associated with a plurality of inertial frames.
11. God does not exist in either the time associated with a single inertial frame or the times associated with a plurality of inertial frames.
12. Therefore, God is not temporal.

What can be said in response to this argument? Although it may come as something of a shock to many, the most dubious premiss of the argument is (8). For STR's concept of time rests upon decrepit epistemological foundations. Einstein's re-definition of simultaneity in terms of clock synchronization by light signals simply assumes that the time which light takes to travel between two relatively stationary observers A and B is the same from A to B as from B to A in a round-trip journey. That assumption presupposes that A and B, while at relative rest, are not both in absolute motion, or in other words that neither absolute space nor a privileged inertial frame exists. What justification did Einstein have for so radical a presupposition? The answer, in a word, is verificationism. It is empirically impossible to

distinguish uniform motion from rest relative to such a frame, and Einstein believed that if absolute space and absolute motion or rest are undetectable empirically, they therefore do not exist (and may even be said to be meaningless). Historians of science have shown that at the philosophical roots of Einstein's theory lies a verificationist epistemology, mediated to the young physicist chiefly through the influence of Ernst Mach, which comes to expression in Einstein's analysis of the concepts of time and space.⁵

The untenability of verificationism is so universally acknowledged that it will not be necessary to rehearse the objections against it here.⁶ Verificationism provides no justification for thinking that Newton erred, for example, in holding that absolute time, grounded in God's sempiternal duration, exists independently of our physical measures of it and may or may not be accurately registered by them. With the demise of verificationism, the philosophical underpinnings of STR have collapsed. In short, there is no reason think that (8) is true.

Moreover, contrary to (9), it does not follow from the correctness of STR that if God is in time, then He is in the time of one or more inertial frames. Because according to General Relativistic cosmological models, space itself is expanding, there is no universal inertial frame with which God can be associated, even though there does exist a preferred foliation of spacetime and so a cosmic time in which God can be conceived to exist.⁷ Based on a cosmological, rather than a local, perspective, cosmic time serves to restore the classical notions of universal time and absolute simultaneity which STR denied.

Argument from the Incompleteness of Temporal Life. Brian Leftow, as well as Eleonore Stump and Norman Kretzmann, argue that the fleeting nature of temporal life is incompatible with the life of a most perfect being such as God. A temporal being is unable to enjoy what is past or future for it, possessing only the fleeting present. The passage of time thus renders it impossible for any temporal being, even God, to possess all its life at once. By contrast a timeless God lives all His life at

once because He literally has no past or future and so suffers no loss. Therefore, since God is the most perfect being, He is timeless.

We can formulate this argument as follows:

- 13. God is the most perfect being.
- 14. The most perfect being has the most perfect mode of existence.
- 15. Therefore, God has the most perfect mode of existence.
- 16. Temporal existence is a less perfect mode of existence than timeless existence.
- 17. Therefore, God has a timeless mode of existence.

The key premiss here is (16), which rests on very powerful intuitions about the irretrievable loss that arises through the experience of temporal passage, a loss which intuitively should not characterize the experience of a most perfect being. Some philosophers of time might try to avert the force of this consideration by adopting a tenseless view of time according to which things and events do not in fact come to be or pass away. The difference between past, present, and future is a subjective illusion of consciousness. On this view of time no temporal being ever really loses its past or has not yet acquired its future; it (or its temporal parts) just exists tenselessly at its various temporal locations. A temporal God would exist at all temporal locations without beginning or end and so would not lose or acquire portions of His life.

The problem with this escape route is that it fails to appreciate that the argument is based on the *experience* of temporal passage, rather than on the objective reality of temporal passage itself. Even if the future never becomes and the past is never really lost, the fact remains that for a temporal person the past is lost *to him* and the future is not accessible *to him*. For this reason, it would be futile to attempt to elude the force of this argument by postulating a temporal deity in a tenseless time.

Perhaps, however, the realization that the argument is essentially experiential in character opens the door for a temporalist alternative. When we recall that God is perfectly omniscient and so forgets nothing

of the past and knows everything about the future, then time's passage is not so tragic for Him. His past experiences do not fade as ours do, and He has perfect prescience of what the future holds. So it is far from obvious that the experience of temporal passage is so melancholy an affair for an omniscient God as it is for us. Moreover, the life of a perfect person may have to be characterized by the incompleteness which would in other contexts be considered an imperfection. Timelessness may not be the most perfect mode of existence of a perfect person. All this goes to call into question (16). Still, this last argument, like the argument from divine foreknowledge, does have some force and so needs to be weighed against whatever arguments can be offered on behalf of divine temporality.

Arguments for Divine Temporality

Argument from the Impossibility of Atemporal Personhood. One argument frequently raised in the literature is that timelessness and personhood are incompatible. Some philosophers have denied that a timeless God can be a self-conscious, rational being because He could not exhibit certain forms of consciousness which we normally associate with personal beings (namely, ourselves). For example, Robert Coburn has written,

Surely it is a necessary condition of anything's being a person that it should be capable (logically) of, among other things, doing at least some of the following: remembering, anticipating, reflecting, deliberating, deciding, intending, and acting intentionally. . . . But now an eternal being would necessarily lack all of these capacities in as much as their exercise by a being clearly requires that the being exist in time. . . . Hence, no eternal being, it would seem, could be a person.⁸

Since God is essentially personal, He therefore cannot be timeless.

We can formulate this argument as follows (using x , y , z to represent certain properties allegedly essential to personhood):

18. Necessarily, if God is timeless, He does not have the properties x , y , z .

19. Necessarily, if God does not have the properties x , y , z , then God is not personal.

20. Necessarily, God is personal.

21. Therefore, necessarily, God is not timeless.

The defender of divine timelessness may attempt to turn back this argument either by challenging the claim that the properties in question are necessary conditions of personhood or by showing that a timeless God could possess the relevant properties after all. With respect to the second strategy, even if Coburn were correct that a personal being must be capable of exhibiting the forms of consciousness he lists, it does not follow that a timeless God cannot be personal. For God could be *capable* of exhibiting such forms of consciousness but be timeless just in case He does not *in fact* exhibit any of them. In other words, the hidden assumption behind Coburn's reasoning is that God's being timeless or temporal is an essential property of God. But that assumption seems dubious. Suppose, for the sake of argument, that God is in fact temporal. Is it logically impossible that God could have been timeless instead? Since God's decision to create is free, we can conceive of a possible world in which God alone exists. If He is unchanging in such a world, then on any relational view of time God would be timeless. But then it seems that there are possible worlds in which God exists temporally and possible worlds in which He exists timelessly. God's temporal status is thus plausibly a contingent rather than essential property.

So if timelessness is a merely contingent property of God, He could be entirely capable of remembering, anticipating, reflecting, and so on; only were He to do so, then He would not be timeless. So long as He freely refrains from such activities He is timeless, even though He has the *capacity* to engage in those activities. Thus, by Coburn's own lights God must be regarded as personal.

At a more fundamental level, it is in any case pretty widely recognized that most of the forms of consciousness mentioned by Coburn are not essential to personhood or could be exemplified timelessly. Take deciding, intending, and acting intentionally, for example. All of these forms of consciousness are exhibited by a timeless God. With respect to deciding, omniscience alone precludes God's deciding in the sense of making up His mind after a period of indecision. Even a temporal God does not decide in that sense. But God does decide in the sense that His will inclines toward one alternative rather than another and does so freely. Because God is omniscient, His free decisions are either sempiternal or timeless rather than preceded by a period of ignorance and indecision.

As for intending or acting intentionally, there is no reason to think that intentions are necessarily future-directed. One can direct one's intentions at one's present state. God, as the Good, can timelessly desire and will His own infinite goodness. Such a changeless intention can be as timeless as God's knowing His own essence. Moreover, in the empty world we have envisioned, God may timelessly will and intend to refrain from creating a universe. Hence, it seems that God can timelessly intend, will, and choose what He does.

In short, the argument for divine temporality based on God's personhood cannot be deemed a success.

Argument from Divine Action in the World. In our thought experiment above, we abstracted from the actual existence of the temporal world and considered God existing alone without creation and asked whether He could exist timelessly. But, of course, the temporal

world does exist. The question therefore arises whether God can stand in relation to a temporal world and yet remain timeless. It is very difficult to see how He can. Imagine once more God existing changelessly alone without creation, but with a changeless determination of His will to create a temporal world with a beginning. Since God is omnipotent, His will is done, and a temporal world comes into existence. Can God remain untouched by the world's temporality? It seems not. For at the first moment of time, God stands in a new relation in which He did not stand before (indeed, there was no "before"). Even if in creating the world God undergoes no *intrinsic* change, He at least undergoes an *extrinsic* change. For at the moment of creation, God comes into the relation of *sustaining* the universe or, at the very least, of *co-existing with* the universe, relations in which He did not stand before. Since He is free to refrain from creation, God could have never stood in those relations, had He so willed. But in virtue of His creating a temporal world, God comes into a relation with that world the moment it springs into being. Thus, even if it is not the case that God is temporal prior to His creation of the world, He nonetheless undergoes an extrinsic change at the moment of creation which draws Him into time in virtue of His real relation to the world. So even if God is timeless without creation, His free decision to create a temporal world also constitutes a free decision on His part to exist temporally.

The argument can be summarized as follows:

- 22. God is creatively active in the temporal world.
- 23. If God is creatively active in the temporal world, God is really related to the temporal world.
- 24. If God is really related to the temporal world, God is temporal.
- 25. Therefore, God is temporal.

This argument, if successful, does not prove that God is essentially temporal, but that if He is a Creator of a temporal world--as He in fact is--, then He is temporal.

One way to escape this argument is to deny (23). This might not appear to be a very promising strategy, since it seems obvious that God is related to His creatures insofar as He sustains them, knows them, and loves them. Remarkably, however, it was precisely this premiss that medieval theologians like Aquinas denied. Thomas agrees with (24). On his view, relational properties involving God and creatures, like God's *being Lord*, first begin to exist at the moment at which the creatures come into being (*Summa theologiae* 1a. 13. 7). Hence, if God stands in real relations to His creatures, He acquires those relational properties *de novo* at the moment of creation and thus undergoes change. And anything that changes, even extrinsically, must be in time. Thomas escapes the conclusion that God is therefore temporal by denying that God stands in any real relation to the world. Since God is absolutely simple, He stands in no relations to anything, for relations would introduce complexity into God's being. Aquinas holds, paradoxically, that while creatures are really related to God, God is not really related to creatures. The relation of God to creatures exists only in our minds, not in reality. On Aquinas's view, then, God undergoes no extrinsic change in creating the world. He just exists, and creation is creatures' coming into existence with a real relation to God of being caused by God.

This is certainly an extraordinary doctrine. Wholly apart from its reliance on divine simplicity, the doctrine of no real relations is very problematic. God's sustaining the world is a causal relation rooted in the active power and intrinsic properties of God as First Cause. Thus, to say the world is really related to God by the relation *is sustained by*, but that God is not really related to the world by the relation *is sustaining* seems unintelligible. It is to say that one can have real effects without a real cause--which seems self-contradictory or incomprehensible.

Moreover, God is surely really related to His creatures in the following sense: in different possible worlds, God's will, knowledge, and love are different than they actually are. For example, if God had not chosen to create a universe at all, He would surely have a different will than that which He has (for He would not will to create the

universe); He would know different truths than the ones He knows (for example, He would not know *The universe exists*); He would not love the same creatures He actually loves (since no creatures would exist). It is the implication of Aquinas' view, however, that God is perfectly similar in every possible world: He never wills differently, He never acts differently, He never knows differently, He never loves differently. Whether the world is empty or chock-full of creatures of every sort, there is no difference in God. But then it becomes unintelligible why this universe or any universe exists rather than just nothing. The reason cannot lie in God, for He is perfectly similar in all possible worlds. Nor can the reason lie in creatures, for we are asking for some explanation of their existence. Thus, on Thomas's view there just is no reason for why this universe or any universe at all exists. Therefore, Thomas's attempt to evade the present argument by denying (23) is implausible.

Recent defenders of timeless eternity have turned their guns on (24) instead. Brian Leftow as well as Eleonore Stump and Norman Kretzmann have tried to craft theories of divine eternity which would permit God to be really related to the temporal world and yet to exist timelessly. I do not have the time to discuss these theories now; suffice it to say that the general consensus is that they have failed to make good on their promises.

In summary, it seems that we have here a powerful argument for divine temporality from God's relation to the world.

Argument from Divine Knowledge of Tensed Facts. Defenders of divine temporality have argued that a timeless God cannot know certain tensed facts about the world--for example, what is happening now--and therefore, since God is omniscient, He must be temporal.

We can formulate the argument as follows:

- 26. A temporal world exists.
- 27. God is omniscient.

- 28. If a temporal world exists, then if God is omniscient, God knows tensed facts.
- 29. If God is timeless, He does not know tensed facts.
- 30. Therefore, God is not timeless.

Again, this argument does not prove that God is essentially temporal, but, if successful, it does show that if a temporal world exists, then God is temporal.

Defenders of divine timelessness have attempted to refute this argument either by arguing that a timeless God can know tensed facts or by arguing that God may still qualify as omniscient even if He is ignorant of tensed facts.

Let us look first at the plausibility of denying (29). Can a timeless God know tensed facts? Although Jonathan Kvanvig, Edward Wierenga, and Leftow have all argued that God can know the facts expressed by tensed sentences, an analysis of their respective positions reveals that in the end they all embrace the view that the factual content expressed by tensed sentences is tenseless.⁹ Despite first appearances to the contrary, they all accept the truth of (29). Kvanvig, Wierenga, and Leftow's accounts are the most sophisticated attempts to explain how a timeless God can know the facts expressed by tensed sentences, yet they all finally deny that God knows tensed facts. Thus, (29) seems secure.

The defender of divine timelessness has no recourse, then, but to deny (28). He must deny that omniscience entails a knowledge of tensed facts. He can do this either by revising the traditional definition of omniscience or else by maintaining that tense, while an objective feature of time, does not strictly belong to the factual content expressed by tensed sentences. Let us examine each strategy in turn.

Leftow entertains the idea of revising the definition of omniscience in such a way that omniscience does not entail knowledge of all truths. He argues, in effect, that there are many sorts of truths which God cannot know, so there is no harm in admitting one more class of truths (namely, tensed truths) of which God is ignorant.

The problem is that such a consideration should not affect the definition of “omniscience” as such. In any case, does Leftow succeed in showing that there are truths which God cannot know? It seems not. His examples of things God cannot know include how it feels to be oneself a failure or a sinner. But Leftow has confused *knowing how* with *knowing that*. *Knowing how* does not take truths as its object. God can know such truths as *Being a failure feels lousy*, *Sinners feel guilty and hopeless*, and so on. God’s not knowing how it feels to be Himself a failure or a sinner is not an example of truths He fails to know and so does not constitute a restriction on His omniscience. Leftow furnishes no example of any truth which might be conjoined with “knows that” such that we cannot say, “God knows that _____,” where the blank is filled by the truth in question. Therefore, he has not adequately motivated denying that knowledge of tensed truths properly belongs to omniscience. The traditional definition of omniscience requires it, and we have no grounds which do not involve special pleading for revising the usual definition.

So what about the second strategy for denying (28), namely, maintaining that tense does not, strictly speaking, belong to the factual content expressed by tensed sentences, even though tense is an objective feature of the world? Tense might be analyzed as a feature of the mode in which the factual content is presented to someone expressing it, or of the way in which a person grasps the factual content, or of the context of someone’s believing the factual content. On such analyses, an omniscient being could be timeless because omniscience is traditionally defined in terms of factual knowledge and tense is not part of the factual content of tensed sentences. Tense is an objective feature of the world, but since it does not belong to the factual content of a sentence, a being which knew only tenseless facts could on the traditional definition count as omniscient.

Even though such analyses are plausible and attractive, they do not ultimately save the day for the defender of divine timelessness. For as the greatest conceivable being, God is not merely factually omniscient,

but also maximally excellent cognitively. Just as it is a cognitive perfection to have first-person knowledge *de se*, it is a cognitive perfection to know what time it is, what is actually happening in the universe. A being whose knowledge is composed exclusively of tenseless facts is less excellent cognitively than a being who also knows what has occurred, what is occurring, and what will occur in the world. This latter person knows infinitely more than the former and is involved in no cognitive defect in so knowing. On the analogy of knowledge *de se*, we can refer to such knowledge as knowledge *de praesenti* (knowledge of the present). A being which lacks such knowledge is more ignorant and less excellent cognitively than a being which possesses it. Accordingly, if we adopt views according to which tense is extraneous to the factual content expressed by a tensed sentence, we should simply revise premiss (28) to read

28'. If a temporal world exists, then if God is maximally excellent cognitively, then God has knowledge *de praesenti*

and, with appropriate revisions, the argument goes through as before.

Eternity and the Nature of Time

On the basis of our foregoing discussion, we have seen comparatively weak grounds for affirming divine timelessness but two powerful arguments in favor of divine temporality. It would seem, then, that we should conclude that God is temporal. But such a conclusion would be premature. For there does remain one way of escape still open for defenders of divine timelessness. The argument based on God's action in the world assumed the objective reality of temporal becoming, and the argument based on God's knowledge of the temporal world assumed the objective reality of tensed facts. If one denies the objective reality of temporal becoming and tensed facts, then the arguments are undercut. For in that case, nothing to which God is related ever comes

into or passes out of being, and all facts are tenseless, so that God can be the immutable, omniscient Sustainer and Knower of all things and, hence, exist timelessly.

In short, the defender of divine timelessness can escape the arguments for divine temporality by embracing the tenseless theory of time. It is noteworthy, however, that almost no defender of divine timelessness has taken this route. Virtually the only proponent of timeless eternity to embrace consciously the tenseless theory of time in defending God's timelessness is Paul Helm.¹⁰

It seems, then, that in order to adjudicate the question of the nature of divine eternity and God's relationship to time, philosophical theologians have no choice but to grapple with a further question, one of the most profound and controverted issues of metaphysics: Is time tensed or tenseless? This is difficult and mysterious territory. But we have no choice: if we are to understand eternity, we must first understand time.

NOTES

¹ For an analysis of what it means to be permanent, see Brian Leftow, *Time and Eternity*, Cornell Studies in the Philosophy of Religion (Ithaca, N.Y.: Cornell University Press, 1991), p. 133; cf. Quentin Smith, "A New Typology of Temporal and Atemporal Permanence," *Noûs* 23 (1989): 307-30. According to Leftow an entity is permanent if and only if it exists and has no first or last finite period of existence, and there are no moments before or after it exists.

² See discussion in Thomas V. Morris, *Anselmian Explorations* (Notre Dame, Ind.: University of Notre Dame Press, 1987), pp. 98-123; Christopher Hughes, *On a Complex Theory of a Simple God*, Cornell Studies in Philosophy of Religion (Ithaca, N.Y.: Cornell University Press, 1989).

³ I take for granted that there are contingent events such as human free acts; see also my *The Only Wise God: The Compatibility of Divine Foreknowledge and Human Freedom*. Grand Rapids, Mich.: Baker Bookhouse, 1987.

⁴ Notice, however, that if we think of statements or facts as with in God's perceptual purview, then even on a perceptualist model, God must know the future, so long as the Principle of Bivalence holds for future-tense statements. For He perceives which future-tense statements presently have the property of truth inhering in them or which future-tense facts presently exist. Thus, by means of His perception of presently existing realities He knows the truth about the future.

⁵ See especially Gerald J. Holton, "Mach, Einstein and the Search for Reality," in *Ernst Mach: Physicist and Philosopher*, Boston Studies in the Philosophy of Science 6 (Dordrecht: D. Reidel, 1970), pp. 165-99; idem, "Where Is Reality? The Answers of Einstein," in *Science and Synthesis*, ed. UNESCO (Berlin: Springer-Verlag,

1971), pp. 45-69; and the essays collected together in idem, *Thematic Origins of Scientific Thought*. See also Lawrence Sklar, "Time, Reality, and Relativity," in *Reduction, Time and Reality*, ed. Richard Healey (Cambridge: Cambridge University Press, 1981), p. 141.

⁶ Verificationism proposed a criterion of meaning that was so restrictive that it would consign vast tracts of apparently perfectly intelligible discourse to the trash heap of nonsense; moreover, the criterion seemed to be self-refuting. See the excellent discussion in Frederick Suppe, "The Search for Philosophical Understanding of Scientific Theories," in *The Structure of Scientific Theories*, 2d ed., ed. F. Suppe (Urbana, Ill.: University of Illinois Press, 1977), pp. 3-118.

⁷ Cosmic time is related to the local times of a special group of observers called "fundamental observers." These are hypothetical observers, associated with the galaxies, who are at rest with respect to the expansion of space itself. As the expansion of space proceeds, each fundamental observer remains in the same place, though his spatial separation from fellow fundamental observers increases. Cosmic time relates to these observers in that their local times all coincide with cosmic time in their vicinity. Because of their mutual recession, the class of fundamental observers do not serve to define a global inertial frame, technically speaking, even though all of them are at rest. But since each fundamental observer is at rest with respect to space, the events which he calculates to be simultaneous will coincide locally with the events which are simultaneous in cosmic time. One could say that God exists in the time of the inertial frame of every fundamental observer; but then there is no problem, since all their local times fuse into one cosmic time.

⁸Robert C. Coburn, "Professor Malcolm on God," *Australasian Journal of Philosophy* 41 (1963): 155.

⁹ Jonathan L. Kvanvig, *The Possibility of an All-Knowing God* (New York: St. Martin's, 1986), pp. 150-65; Edward R. Wierenga, *The Nature of God: An Inquiry into Divine Attributes*, Cornell Studies in Philosophy of Religion (Ithaca, N.Y.: Cornell University Press, 1989), pp. 179-85; Leftow, *Time and Eternity*, pp. 312-37. See also Jonathan L. Kvanvig, "Omniscience and Eternity: A Reply to Craig," *Faith and Philosophy* 18 (2003): 369-76; Edward R. Wierenga, Omniscience and Time, One More Time: A Reply to Craig," *Faith and Philosophy* 21 (2004): 90-7.

¹⁰ Paul Helm, "Eternal Creation: The Doctrine of the Two Standpoints," in *The Doctrine of Creation*, ed. Colin Gunton (Edinburgh: T. & T. Clark, 1997), pp. 42-3; Helm, *Eternal God*, pp. 25-7, 44, 47, 52, 79.