Philosophy of Religion 25: 65–81 (1989)

Zeno's paradoxes and the cosmological argument *

JAN DEJNOZKA
United States Naval Academy, Annapolis, MD 21402–5000

1. Introduction

My aim in this paper is to show that the cosmological argument for the existence of God commits a rather trivial linguistic (or conceptual) fallacy, by showing that (1) some of Zeno's paradoxes commit a trivial linguistic (or conceptual) fallacy, and that (2) the cosmological argument is sufficiently similar to these paradoxes that it commits the same fallacy. This conclusion, of course, is far from being itself a trivial matter. Further, F.C. Copleston is adamant that "mention of the mathematical infinite series is irrelevant" to discussing any of Aquinas' arguments for God's existence.[1] I wish to establish secondly the fundamental incorrectness of Copleston's surprising view.

Whether there are other arguments by analogy which may be made to the common benefit or detriment of God and Zeno is a subject which I shall not pursue. Nor shall I inquire whether God as Alpha (or Omega) more closely corresponds to a Leibnizian or Benardetean infinitesimal or to a Weierstrassian or Russellian limit, though I am sure His existence would be more ontological than mathematical. I shall not even discuss an issue which might appear to be obviously germane, namely, the issue of the precise relation of mathematical objects and causes to perception. That is, I shall not ask in what sense, if any, seeing the edge of a piece of paper tacked to a wall ten feet away is seeing a mathematical line, or in what sense, if any, seeing a brick smash a window is seeing a cause. I shall be speaking of crossing finish lines and of seeing dominoes push each other over, but that should be taken as being on the level of common sense. Without the pyrotechnics

* I want to thank Professor José Benardete, Professor Panayot Butchvarov, and Professor David E. Johnson for their very kindly viewing earlier versions of this paper.

such ontological and epistemological issues often raise, the tale told here will be a simple one.

I shall begin by considering a modern version of Zeno's bisection paradox that no locomotion can begin. I shall then work through a series of analogical puzzles to the cosmological argument as the final puzzle. After presenting a general theory about what all the puzzles have in common, I shall arrive at the conclusion that the cosmological argument can establish nothing about the existence of God, because it provides no means to distinguish between the appearance and the reality of the necessity of there being a necessary being.

2. Zeno's paradoxes

One of the many baffling puzzles offered by José Benardete in his extremely imaginative book, *Infinity*, is that of the infinitely serrated or crenellated continuum (or more accurately, discontinuum). The puzzle is given in three ways. Puzzle (1): We open a book. The first page is 1/2 inch thick, the second page is 1/4 inch thick, the third page is 1/8 inch thick, and so on *ad infinitum*. Each page has an immediate successor half as thick. Each page is a finite number of pages away from the first page. Minus the cover, the whole book is not more than one inch thick. We turn to the back to look at the pages from there: "*There is nothing so see.* For there is no last page in the book to meet our gaze."[2] The pages comprise an infinitely serrated continuum. Puzzle (2): There is an infinite series of stone slabs of the same size and order as the pages, lying in a pile. The 1/2 inch thick slab is on the bottom. We step onto the pile. "But what is there to plant our foot upon? *There simply is no top surface to the whole pile.*"[3] Puzzle (3): A similar series of boards is fixed in the ground. The 1/2 inch board is 1/2 inch away from the 1/4 inch board, which is 1/4 inch away from the 1/8 inch board, and so on. The whole affair is not more than two inches thick. All the boards are 5′ x 10′ in width and height. Starting on the side without the 1/2 inch board, we walk toward the boards. "Soon we must collide with the last board in the sequence. *But there is no last board.*"[4] These serrated continua of very concrete, very ordinary objects seem to be not only intelligible, but quite easy to describe. But the consequences seem totally outrageous. What is the problem here?

These three puzzles remind me of a fimiliar paradox concerning shadows. Puzzle (4): Consider an arrangement in order of: (A) a candle, (B) a board, (C) a second board, and (D) a third board. There is, naturally enough, a darkened area, (i), on board (C)'s side facing (B), and a larger but otherwise phenomenologically exactly similar darkened area, (ii), on (D)'s side facing (C). Area (i) is a shadow caused by candle (A). What then is area (ii)? Is it a shadow or not? Area (ii) can hardly be a shadow caused by (A) is a shadow caused by candle (A) falls on the board *in front of* area (ii). Yet if you blow (A) out, area (ii) will disappear, so what can area (ii) be but a shadow caused by (A)? Now Puzzle (4) has an easy solution. Where:

(1) x casts a shadow on y

has at least two logically necessary conditions:

(a1) a light falls on x, and
(b1) nothing opaque intervenes between x and y,

it follows that putting in (B) as x and putting in (C) as y would satisfy conditions (a1) and (b1). That establishes what we know, that area (i) is a shadow. But area (ii) is not a shadow on this analysis. For putting in (B) as x and (D) as y fails to satisfy condition (b1). The point is that though area (ii) plainly *is visible*, and even (except for size) *phenomenologically exactly similar* to area (i), area (ii) plainly cannot be *called* a shadow. That is, the paradox is merely verbal (or conceptual). And that is our solution of Puzzle (4). Now can we provide an analogous solution for Puzzles (1)–(3)? Let us attempt this analysis:

(2) x perceives (sees, touches) y

has at least two logically necessary conditions:

(a2) x's perceptual field extends in the direction of y, and
(b2) nothing "perceptually opaque" intervenes between x and y.

The open ends of Benardete's three continua are analogous to area (ii) in that all three obviously violate condition (b2), and condition (b2) is obviously analogous to condition (b1). Since there is no last page, slab, or board, there is always a page/slab/board intervening between any given page/slab/board and the perceiver. *Mutatis mutandis*, though surely they *are perceptible* when viewed at the open end, the stack of pages cannot be *said* to be seen from the open end, and the stack of slabs and the series of board cannot be *said* to be touched on their open ends. Further, they are *phenomenologically exactly similar* to seeing a page, standing on a slab, and walking into a board.

If we watched the god Apollo quickly cut a solid stone or wood block into a serrated continuum, the stone or block would not even appear to us to change if we kept watching or touching the far end. The whole procedure would take no more than a minute. The first stroke would take 1/2 minute, the second stroke 1/4 minute, and so on. (The illustration comes from Benardete.)

Recall Descartes' thousand sided figure that can be conceived but not imagined or perceived as different from a many sided figure.[5] These serrated continua can be conceived but not imagined or perceived as different from, say, imaginably or perceptually minimally thin pages, slabs, or boards. Thus their imaginability or perceptibility is at bottom as ordinary and unexceptionable as is that of Descartes' figures.[6] How *Apollo* would perceive things may well be beyond our understanding, but I shall suggest in section (ii) of this paper that his *perception* might be rather ordinary.

These serrated continua do have *perceptible* top surfaces, even if they cannot be *said* to have top surfaces because there is no last page, slab, or board to have the logically requisite outermost edge. Just think of looking at or touching the far end of the stone or wood block from before Apollo begins to work until after he is finished. Would there by any perceptible change?

I conclude, somewhat wistfully, that Puzzles (1)–(3) are likewise merely verbal, or slightly more deeply, conceptual. They involves only the logic of our language of perception, and not the actual phenomenology of our perception. But in this it serves well to highlight a difference between language and phenomenology. Can this difference be extended to other cases of ontological interest? Can ontology be reduced to a shadow of itself?

The next four puzzles will lead us from Benardete through Zeno to Parmenides. Puzzle (5): A series of empty door frames is fixed in the ground. The four foot thick frame is four feet from the two foot thick frame. The two foot thick frame is two feet from the one foot thick frame, and so on. The whole affair is no longer than sixteen feet. Achilles is at the first frame, a tortoise is at the second. Achilles can run twice as fast as the tortoise. At the sound of the gun, they are off. We cannot say that Achilles ever overtakes the tortoise. Every time Achilles reaches door frame #n, the tortoise reaches door frame #n + 1. Since there is no last frame, Achilles always lags behind one frame. Also, neither Achilles nor the tortoise can win the race, since (again) there is no last frame to pass through. Puzzle (6): If they had begun at the other end, they could not have even run through the first frame, since there would be no first frame.

My solution to Puzzles (5)–(6) is that no matter which end Achilles and the tortoise start from, the race's outcome would not even appear to be different from what we would see if there were no door frames at all. We would see Achilles overtake the tortoise at the sixteen foot end mark: a tie race. And our seeing this would logically imply that he did overtake it. It is just that our description of Puzzles (5)–(6) has so boxed us into the logic of our language that we cannot say so. Here, the analysis is:

(3) x overtakes y

has at least two logically necessary conditions:

(a3) x progresses toward y, and
(b3) nothing spatially intervenes between x and y.

Condition (b3) resembles the old view that if there is nothing at all between two things, not even the smallest interval of empty space, then they must be touching each other. It is, of course, condition (b3) which is violated in Puzzles (5)–(6), in strict analogy to Puzzles (1)–(4) and conditions (b1) and (b2).

Zeno's paradoxes have cast long shadows:

> ... The first asserts the non-existence of motion on the ground that that which is in locomotion must arrive at the half-way stage before it arrives at the goal ...[7]
> The second is the so-called Achilles, and it amounts to this, that in a race the quickest runner can never overtake the slowest, since the pursuer must first reach the point where the pursued started, so that the slower must always hold a lead.[8]

Call these Puzzles (7) and (8). They are so similar to Puzzles (5) and (6) that the very same solution, namely, the observation that they violate condition (b3), applies. It is Benardetean Puzzles (5) and (6) which show that this solution is not Aristotelian. That is, it has nothing to do with actual versus potential intervals. For the door frames in Puzzles (5) and (6) are all actual. The solution is not mathematical, either. It has nothing to do with whether a line segment includes an infinite number of points. The sixteen foot race track of Puzzles (5) and (6) has an infinite number of door frames along it. But each door frame has a finite thickness. Is not the solution to Puzzles (5) and (6) linguistic (or conceptual)? Is not the logic of the statement form "x overtakes y" analogical to the logic of the statement form "x is a shadow of y"? In Puzzles (1)–(6), is not the appearance of validity of each argument nothing but a shadow cast by logical condition (b1), (b2), or (b3), which conditions are tacitly imbedded in our language and thinking?

Now Zeno was defending Parmenides. Parmenides' own argumentation that change is unreal[9] is based on the logic of language too.[10] For coming into being may be construed as a special type of arrival. Then since what is not is not, one cannot even take the first step of beginning to be. It would be like walking into the open end of the infinite series of door frames, but with the apparent added difficulty of not yet even existing, so as not to be able to walk or do anything at all – such as come into being! Call this Puzzle (9). Also consider similar series of growth and decay for an apple. Nonbeing is, so to speak, the apple's status prior to entering the open end of the growth series. But to say that the apple has *that* status is simply to say that there *is* no apple *to* enter the series. Call this Puzzle (10). I shall advance a solution of Puzzles (9) and (10) which corresponds to our earlier solutions of Puzzles (1)–(8). And you may see in this solution a direct foreshadowing of our treatment of the cosmological argument, which deals after all with the whole world's coming into being.

Consider an infinitely diminishing series of states of fullness of being of a table: full being, half being, quarter being, and so on. These may be states of a Meinongian continuant "simply" progressing from existence to nonexistence, or temporal slices of a Russellian space-time series gradually losing more and more correlations of sense-data, and thus progressing from ordinary thing to hallucination (a single sense-datum), and then to the fading of this datum. You may understand the states any way you like. In any case the fading-away-from-being might be marked by an infinitely fading series of razor nicks (or hand wavings in the case of sense data) made by Apollo over an infinitely diminishing series of intervals of time. The whole affair might take no longer than one minute. Now to reverse the process is to have something coming into being. And our analysis of coming into being might be as follows:

4. x comes into being

has at least two logically necessary conditions.

(a4) x is growing toward mature state y; and
(b4) no state of partial being intervenes between x and y

Now the statement form (4), "x comes into being," has only one variable, while statement forms (1)–(3), respectively "x is a shadow of y," "x perceives (sees, touches) y," and "x overtakes y," have two variables. Nonetheless our usual solution applies. For in Puzzles (9) and (10), condition (b4) is violated. The apparent added difficulty that the table or the apple does not yet even exist is really equivalent to saying that Achilles cannot be a runner because he cannot have that status until he starts to cover some distance, which he cannot do because he cannot get started. It is ultimately nothing more than to say that a candle cannot cast a shadow on a board unless all intervening boards (but one) are first removed. Whatever your theory of names or definite descriptions may be, the seeming difficulty of reference to the table or the apple before it comes into being is no greater than that of the problem of reference to nonexistents in general. Similarly for theories of intentionality and for thinking about nonexistents.

We simply see darkened areas on boards, people overtaking tortoises, and (over time) apples growing on trees, whether we can *say* so or not. The fact that we do ordinarily say so suggests either an ordinary lack of awareness of the logic of language, or perhaps a certain liberality of ordinary use. I shall not pursue the matter here.

Parmenides and Zeno have established not that there is an unchanging ontological being, but rather that there is a logical condition, (b4), deeply imbedded in our language and thought. There may be such a being, but their arguments do not prove this. For the apparent validity of their arguments is due to a linguistic (or conceptual) illusion imposed by our thinking it natural and fit to use statement form (4) to describe the situations in Puzzles (9) and (10). The illusion is that condition (b4) "must" obtain, or else nothing "can" come into being (because otherwise *we* cannot *say* so).

3. The cosmological argument

Now we come to the religious members of this logical family of puzzles. These include the first three ways St. Thomas Aquinas offered for showing the existence of God: the prime mover argument, the first cause argument, and the necessary being argument. I consider the prime mover argument to be a variant of the first cause argument. The prime mover argument may be of independent interest insofar as Plato defined soul as self-motion, so that a prime mover would be a soul.[11] But that aspect of the prime mover argument does not concern us here, and I shall ignore the prime mover argument in what follows. I shall give two formulations of each of the other two arguments.

The first cause argument may be given two formulations.

Formulation (1). Events are given as existing in the here and now. Every event has a cause. Thus a current event, E1, would have a cause, E2. But then E2 would have a cause, E3, and so on. Now without a first cause as a beginning event in the series, nothing would exist in the series at all. But this is absurd. For E1 is given as existing. Therefore there must exist a first cause.

Formulation (2). Events are given as existing in the here and now. Every event has a cause. Thus a current event, E1, would have a cause, E2. But then E2 would have a cause, and so on. Thus there exists an infinite series, S1, of events. Now this series is itself, broadly speaking, an event. Thus there must be a cause, C1, outside the series to explain why this particular infinite series exists as opposed to some other infinite series, S2, or no series at all.

For our purposes the difference between Formulations (1) and (2) makes no difference. I mention it only to set it aside. I shall discuss only Formulation (1) in what follows, because it is the simpler one. In keeping with our earlier format, Formulation (1) may be considered as being Puzzle (11).

Does Puzzle (11), then, admit of a solution along the lines of our earlier solutions? Let us compare Puzzle (11) to a particular series of causes and effects. Let us compare it to an infinite series of very thin, opaque dominoes, each pushing the next larger one over in twice the amount of time the last pushover took. If the largest domino is half an inch thick, and is pushed over in half a minute, the whole series of pushovers would have taken no more than one minute. Now if each domino falls on the next larger one, then there is no thinnest domino which is the first one to fall. (Following Plato, a first-falling domino might be a "domino person" which makes itself fall.) Call the puzzle of how the dominoes begin to fall on each other, Puzzle (12).

Now Puzzle (12) resembles our earlier puzzles fairly well. Our analysis might be:

5. x pushes over y

has at least two logically necessary conditions:

(a5) x imparts a certain pushing-over action to y; and
(b5) nothing causally mediates this action of x on y

Plainly, condition (b5) would be violated in the domino series if we tried to push over the dominoes at the open end of the series. For there would be no first domino for us to push over. We could not *say* that there is a first falling domino, but the situation would be, looking straight at the open end of the series of dominoes, phenomenologically indistinguishable from seeing the backside of a first domino which we are pushing over.

Now consider the case of a self-pushing first "domino person". That case would be phenomenologically indistinguishable from the situation described in Puzzle (12), even though in the situation described in Puzzle (12), we could not *say* that the dominoes began to push each other over. Thus in Puzzle (12), even though we could not *say* so, we could *see* the dominoes falling just as if there *were* a first domino-person. But that there must be such a first domino would be a linguistic or conceptual illusion imposed by our thinking it natural and fit to use statement form (5) to describe what is going on in Puzzle (12). *Mutatis mutandis* for the first cause argument. The analysis would be:

6. x causes y

has at least two causally necessary conditions:

(a6) x imparts a certain change of state to y; and
(b6) nothing causally mediates this action of x on y

That there must be a first cause of the world would be a linguistic or conceptual illusion imposed by our thinking it natural and fit to use statement form (6) to describe things in the world. The illusion consists in thinking that condition (b6) "must" apply because we happen to engage in language or thinking that implies it.

The cosmological argument may be stated as follows.

Formulation (1). An event, E1, is given as existing in the here and now. There is a reason for the existence of every event. If this reason lies within the event itself, then the event is a necessary being. Otherwise the event is a contingent being, meaning that its existence depends on the existence of something other than itself. Now every event is either necessary or contingent. If E1 is contingent, then there exists an event, E2, on whose existence E1's existence depends, and so on. If there is no necessary being as a first member of the series, then no event in the series would exist at all. But this is absurd, as we are given the existence of E1. Therefore a necessary being exists.

Formulation (2). The series (E1, E2, ..., En) is infinite, but as a whole series, S1, it depends on some necessary being, NB1.

Once again, the difference makes no difference. Accordingly I shall discuss only the simpler Formulation (1), calling it Puzzle (13).

I accept Frederick Copleston's temporally "vertical" interpretation of St. Thomas Aquinas' first cause argument as applying to Puzzle (13). This will help make Puzzle (13) a little different from Puzzle (12). On this sort of interpretation the whole series of dependent events exists in the here and now. Copleston does not see St. Thomas as rejecting the possibility of a *temporally horizontal* infinite series of causes and effects.[12] But Copleston interprets St. Thomas' first cause argument in this manner for this reason: Copleston sees St. Thomas as holding that in a *temporally vertical* series of causes and effects, no causal activity or change is possible in the here and now without a first cause existing in the here and now.[13] And this seems to increase the persuasive force of the argument. Copleston, of course, correctly interprets St. Thomas' cosmological argument in terms of a *temporally horizontal* series of events. Thus my Formulation (1) of the cosmological argument, or Puzzle (13) is actually much closer in format to St. Thomas' first cause argument than it is to St. Thomas' cosmological argument. But here, too, I think the difference makes no difference.

There may be other reasons for preferring a vertical interpretation of either argument. It might be argued that only an actual infinite regress would be a vicious infinite regress in these arguments, and that only the present is actual, the past having ceased to be actual.[14] Thus the arguments might seem to be stronger on the vertical interpretation, and the tension of the conflict between phenomenology and the logic of language accordingly greater. I shall not rule on this question, but wholly grant whatever answer you may prefer.

The vertically understood Puzzle (13) may be compared to an infinitely diminishing serration of the Earth itself into concentric spheres which are progressively thinner the closer you come to being five feet away from the gravitational center of the Earth. Each sphere prevents the next larger one from beginning to collapse in the here and now. Call this Puzzle (14): How do the spheres avoid collapsing? Our analysis regarding Puzzle (14) might be:

7. x prevents y from collapsing

has at least two logically necessary conditions:

(a6) x underlies y; and
(b7) no sphere lies between x and y

To make a long story short, we cannot *say* that there is a first sphere, but to a human observer with a flashlight in the ten foot diameter cavity, the situation would be phenomenologically indistinguishable from there being a first sphere which keeps from collapsing due to its own nature. The corresponding analysis concerning Puzzle (13) would be:

8. x is (causally, logically, ontologically) dependent on y

has at least two logically necessary conditions:

(a8) x (causally, logically, ontologically) cannot exist unless y exists; and (b8) nothing (causally, logically, ontologically) intervenes between x and y

Thus the cosmological argument, like the first cause argument, is based on a linguistic (conceptual) illusion.

There is one seemingly great difference between Puzzles (11) and (13) on the one hand, and Puzzles (12) and (14) on the other. Namely, our dominoes and rock layers are infinitely diminishing series, while the causes and dependencies of the arguments for God are not. I shall argue that this difference makes no difference.

First, simply consider our infinitely diminishing series. In each of them what is logically relevant to our argument is evidently not the diminishment as such, but the (b)-conditions concerning the absence of an intermediary stage.

Second, it is easy to show that the (b)-series conditions would still obtain in each case even if the diminishment ceased to exist. I define the *normalization* of a diminishing series as the systematic augmentation of each member of the series and of the interval (if any) between each pair of niehgboring members so as to achieve equality of the members and equality of the intervals in the relevant respects. (The reverse operation might be called *compression* of a normal series into an infinitely diminishing series.) For instance, Apollo might quickly cut a wood block on which Athena lies sleeping into an infinitely diminishing series of horizontal boards, working from bottom to top. He then might equally quickly go back twice through the boards, once to fuse to each board a complementary board such that each original board and its complement taken together are one inch thick, and once to fix each fused board-pair one foot away from the last using a pair of supports. These three operations would take no more than three minutes to perform, using three infinitely diminishing series of time intervals. While the whole affair was not more than two inches thick at first, on normalization it becomes infinitely stretched out in its open-ended direction. Athena, resting on top of the original block, would be pushed an infinite distance above the ground without even waking up, if she survived the infinite acceleration and if the board-pairs held up. Apollo might be playing a practical joke on Athena. That is, aside from some logically irrelevant details, the phenomenology of the whole situation from beginning to end would remain exactly similar so far as Athena would be concerned. Nor would Athena be, so to speak, in another space. Far having no spatial relationship to the series of board-pairs, she would be resting on top of the open end of the series. She would even have a *perceptual* relation to the series! She might be an infinite distance away from each *individual* board-pair in the series, but her perception would not be altered for all that.[15]

I can now fulfill my earlier promise to explain how Apollo would perceive things. How Apollo would perceive any of his three compressed operations would seem to be no different from how we would perceive things were we condemned, like Sisyphus, to carry out that operation's normalization throughout eternity. More importantly, Athena visual and tactile perception of the open end of the board-pair series would be no different from our seeing and touching a board. It is not the perception that differs, but the situation.

Mutatis mutandis for an observer, say Athena, of an infinite causal series. Athena would be situated in the infinitely remote past, but not in another time. What she observed would be phenomenologically indistinguishable from her observing a first cause. But what she observed could not be *said* to be a first cause because condition (b7) would be violated. If the series is of ontological dependencies all of which obtain in the here and now, then Athena would be observing the open end of the series of dependent events in the here and now, but would be infinitely ontologically remote from any particular event. We cannot *say* that there is a first event of the cosmological series, because condition (b8) would be violated. Yet the situation to Athena would be phenomenologically indistinguishable from there being a necessary being. That is, the phenomenological difference between the cosmological development of a beginningless world as a god would perceive the situation, and a situation which we could *describe in language* as a first cause or necessary being, would be no greater than the difference between area (i) on board (C) and area (ii) on board (D), that is, between a shadow and a darkened area.

Perhaps we could not normalize the concentric spheres without cutting them in half and normalizing each half, or changing their spatial relations to each other in some other way. But this is, so to speak, a merely practical matter.

4. Conclusion

Dependency is broadly speaking something all these puzzles have in common. Thus statement form (8) is really the form of our general theory as to what is fallacious in all fourteen puzzles. In the bisection paradox we presented, for instance, our arriving at some point geometrically depends on our first arriving at the halfway stage. And in the Achilles, Achilles' catching up with the tortoise temporally and geometrically depends on his first arriving at the point the tortoise began the race. But the truly general account is perhaps better expressed in terms of reasons than dependencies. For the cosmological argument may be expressed simply in terms of the principle of sufficient reason, namely, that everything has a reason for being. Then the cosmological argument would conclude that there must be something which is its own reason for being. I shall not discuss the truth or plausibility of the principle of sufficient reason here, nor that of the principle that every event has a cause. Our analysis would be:

9. x is fully accounted for by y

has two logically necessary conditions:

(a9) y's existence is a sufficient reason for x's existence; and
(b9) nothing intervenes in the account of x in terms of y.

Now the world is either (I) an infinite series of causes with no first cause as member, or (II) a series with a first cause as member. These alternatives seem to be mutually exclusive and jointly exhaustive. On either alternative the world as intentional object (for Athena) is qualitatively identical. Is it more reasonable to hold that the world has always been than it is to admit some mysterious first cause our ontology to halt an allegedly vicious infinite regress? I think so. But the plausibility hardly matters as to my next point. If alternative (I) *is* correct, then Athena, *if* she takes what she observes to be the beginning of the world, is performing a linguistically and conceptually illusive perceptual act. Similarly if Athena takes herself to be beholding a necessary being in the here and now.

Why, in our own thinking about the origin of the world, do we feel constrained to think that there "must" be a first cause? It is the contention of this paper that there is no way phenomenologically to distinguish between our thinking about the world as having a beginning and our thinking about the world as having no beginning. The intentional object in either case is the same. (Even the gods cannot perceptually tell the difference.) That is why the world cannot help but look to us as if it had a beginning cause, at least so long as we do not think of the possibility of a conceptual illusion such as I have been describing. We simply become constrained by our use of "x causes y" into believing that there "must" be a first cause, since condition (b7) of the applicability of that language "must" apply. But how do we know that our use of "x causes y" is justified in the first place? We simply do not know.

Let me explain. While we may be in a position to tell that darkened area (ii) on board (D) is not a shadow by examining the lineup of boards, and seeing that condition (b1) is not satisfied, we are hardly in a position to tell that the beginning of the world is not a first cause by examining the lineup of causes, and seeing that condition (b7) is not satisfied. In both cases the examination must be carried out before using our language, if we are to tell if our language applies. But in the first cause argument, the language is simply assumed to apply, and the examination is not performed at all.

Thus the first cause argument commits the old blunder of secretly mistaking "It is impossible for us to see that not-P" for "We see that it is necessary that P." So obviously the argument can prove nothing. The same thing applies to the cosmological argument.

Here we are only in a position to understand the illusion by rendering a careful and intelligible description of the phenomenology and of the logic of the language involved. This is not to deny that there is a first cause, but it is to deny that the first cause argument proves that there must be one. Similarly for the cosmological argument.

Once we understand the illusion, a simple proposal for linguistic reform comes immediately to mind. Just drop conditions (b1)–(b9). We can retain the language of (1)–(9) or use instead the language of (a1)–(a9). This is another difference that makes no difference. Zeno's paradoxes disappear. After all, would not Achilles start, run, and finish the race the same normal and continuous way regardless of how many door frames Apollo might build along the track? What difference would they make? And the cosmological argument loses whatever appearance of validity it may have had. For on our proposal, every event has a superabundance, an infinite number, of sufficient reasons. Perhaps God has never seemed less necessary for explaining why things exist. What difference would God make?

The great weakness of the argument developed here may be thought to be its being based on so slender a foundation: an analogy to a single case, shadows. And just how analogous *are* shadows to Zeno's paradoxes and to the cosmological argument? My reply is this. First, an argument by analogy is not an argument based on probability. So strictly speaking, the number of cases has nothing to do with the strength of the argument. Second, the disanalogies that may be pointed out, such as: area (ii)'s being larger than area (i); some series's not involving progressive diminishment or increase; our not being able to normalize the concentric spheres; the series of (A), (B), (C), and (D) in Puzzle (4) having only finitely many members; and even candles and shadows not being much like door frames or spheres, do not seem to be relevant to the argument. These matters may be further discussed. But there seems to be nothing wrong with the argument's internal structure, which is the only important matter. This structure consists of the logical similarity of the relation of each statement form to its (a)-condition and its (b)-condition.

First cause, necessary being, changeless being – these are the shadows cast by the arguments examined here, and we have not yet begun to unchain ourselves in Plato's Cave in our quest to learn their possible correspondence to reality. But returning to the question of reasonableness, if we consider it reasonable that the world is, changes, and has always been, and unreasonable that there is some mysterious necessary being, changeless being, or first cause, then on the present analysis we are free to consider it reasonable that the shadows cast by these arguments do not happen to correspond to reality.

Notes

1. F.C. Copleston, *Aquinas* (Hammondsworth, England: Penguin Books Ltd, 1982), p. 124.
2. José Benardete, *Infinity* (London: Oxford University Press, 1964), p. 237.
3. Ibid.
4. Ibid.
5. René Descartes, *Meditations on First Philosophy* (Indianapolis: Bobbs-Merrill, 1985), pp. 68–69.

6. David Hume, *A Treatise of Human Nature* (Oxford: The Clarendon Press, 1973), pp. 26ff., 44ff., 52ff.
7. G.S. Kirk, J.E. Raven, and M. Schofield, *The Presocratic Philosophers: A Critical History With a Selection of Texts*, Second Edition: (Cambridge, England: Cambridge University Press, 1985), p. 270, fragment 318 (trans. Gaye).
8. Op.cit., p. 272, fragment 322 (after Gaye).
9. Op.cit., pp. 249–250, fragment 296.
10. Richard Taylor, *Metaphysics* Englewood Cliffs: Prentice-Hall, 1983), Chapter Ten on polarized thinking, presents a similar though rather more general argument.
11. Plato, *Laws*, in Benjamin Jowett, trans., *The Dialogues of Plato*, Volume Two (New York: Random House, 1937), X 897.
12. *Aquinas*, p. 122.
13. Op.cit., p. 123.
14. *Infinity*, p. 126, Note 1.
15. Compare op.cit., p. 142ff.