



## Essential Philosophy with Dr. David Schenk

### Lesson 10: Grünbaum's Response to the Cosmological Argument

#### Outline:

#### Grünbaum's Argument

- (1) To “begin to exist” means to have an earliest moment in time.
- (2) The universe, even though only 13.8 billion years old, did not have an earliest moment in time.
- > (3) ∴, the universe, even though only 13.8 billion years old, did not begin to exist.

#### Notes on Grünbaum's Argument

- Grünbaum denies W. L. Craig's Premise (2). This seems counterintuitive for an atheist who believes in the truth of Big Bang Cosmology, but Grünbaum makes it work.
- Grünbaum claims that we can say for certain that the universe does not have a first moment in time. If Grünbaum is correct, then Craig's Premise (2) and the Cosmological Argument are false.

#### Background assumptions that Grünbaum needs: (blackboard at 6:48)

- Moments are infinitesimals (time is a continuum, not discrete)
- Time and space only exist insofar as events and objects do (time and space metaphysically depend on objects and events)

#### How does Grünbaum defend his Premise (2)? (blackboard at 8:56)

- Closed Ray & Open Ray Analogy (8:56)
  - Closed ray—leftmost point is A
  - Open ray—A is the limit to the left, but A is not a member of the ray; A cannot be touched, nor does it exist; you can get infinitely closer to A, but you can never touch it. The history of the universe is an open ray!
- Line-segment AB & Line-segment AB-A Analogy (11:00)
  - Line-segment AB-A is an infinitesimally smaller line segment. There is no leftmost point. Since A is not a member of the line-segment



anymore, A cannot be touched; you can get close to it, but never touch it. The universe works like line-segment AB-A!

### Why is the universe like the Open Ray & AB-A line-segment analogies? (12:40)

- The entire cosmos, 93 billion light-years in diameter, must compress into a zero dimensional mass point, meaning no extension or physical quantities exist. This means no space and time exists.
- Remember, for Grünbaum space and time only exist insofar as objects and events do. But if the Big Bang singularity has no extension, then no events exist. And since there are no events, there cannot be a first cause.

### Craig's responses to Grünbaum: (19:10)

- Deny that time depends on physical events
  - Craig is a time Absolutionist (time can exist without events)
  - Grünbaum is a time Relationist (time only exists as sets of relations between events; no events mean no time)
- Deny Premise (1) of Grünbaum's argument
  - An earliest infinitesimal moment of time might not exist, but a 1st second, 2nd second, and 3rd second do, so that we can say the universe did begin to exist even if it did not have an earliest moment of existence—we can get infinitesimally close.
  - If the universe did begin to exist, then it must have a cause.