

HAWKING'S COSMOLOGY

I - Introduction: Is science compatible with religion?

A Brief history of time: A book on cosmology.
www.hawking.org.uk

II- Cosmological thoughts: Why is there something rather than nothing?

Four possibilities:

- 1) Created Universe by God
- 2) Created Universe by some Natural event.
- 3) Created universe with no explanation.
- 4) Eternal universe

III- The modern model of the universe:

Newton's absolutes

IV - The theory of relativity:

Special relativity: relativity of frames of measurement.

- A) Relativity of mass, length, and time.
- A) Time dilation: as you move closer to the speed of light time and in direction of massive objects, time becomes slow.
- Twins' paradox

General relativity: theory of gravity.

Gravity is space-time curvature (massive objects warp or curve space-time).
Predicted the bending of light and red-shift.

V- Relativistic cosmology:

The expansion of the universe predicted by general relativity.

Hawking's original thesis: the expanding universe starts with a big bang-a singularity.

Two possible models of explanation:

- i) God and singularity created the universe.
- ii) Singularity alone created the universe.

Which explanation is better?

VI- The Anthropic principle:

- The “fine-tuning argument”: universe is fine tuned to allow for human existence:
Is it a matter of coincidence that the initial conditions of the universe are conducive to life?

The Anthropic principle: No. It is not- theism strikes back.

But two versions of the principle:

- a) - The strong Anthropic principle: “the universe was designed for humans”.
- b) - The weak Anthropic principle “the conditions necessary for the development of intelligent life will be met only in certain regions that are limited in space and time”.

Possible ways of addressing the argument:

Multi-universe model: our universe is just one of large number of other universes.

Hawking’s “no boundary” universe:

“The universe would be completely self-contained-it would neither be created nor destroyed. It would just be”(Hawking, 144).

“What place then for a creator”(Hawking, p149).

VII- Conclusion:

Is the principle of sufficient reason a necessity?