DESIGN IN COSMOLOGY

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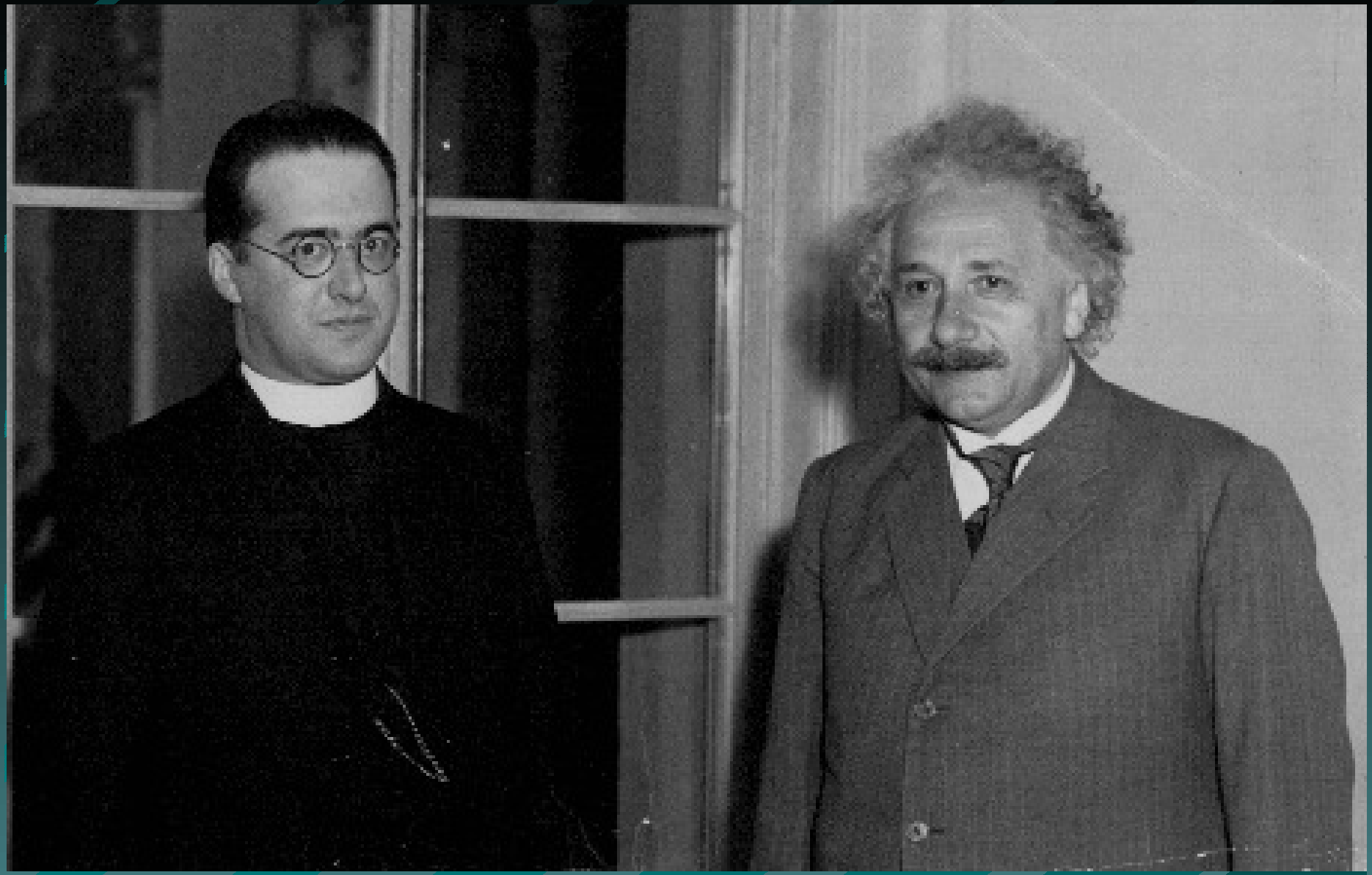
- The Big Bang
- Specialness of the Big Bang: Cosmic Fine-Tuning
- Explanations
- Ultimate Explanations
- A Brief History of Cosmology
- Problems for Multiverses
- Comparing the Explanations



The Big Bang

- Predicted by Lemaître from Einstein's equations
- Extremely well-supported by evidence
  - Cosmic background radiation
  - Manufacture of light elements
  - More active galaxies at largest distances

Specialness of the Big Bang

- Initial conditions
- Physical constants

Examples of Fine-Tuning

- Density at the beginning is right to 1 part in 10^{60}
- Ratio of forces just right for carbon *and* oxygen to be manufactured in stars

What are the Alternative Explanations to Design?

Possible strategies for the atheist:

1. Only one set of laws possible
2. A multiverse

Ultimate Explanations

Only God provides this.

God is *necessary*.

The universe is *contingent*.

For atheistic strategy 1 (only 1 set of laws possible) & atheistic strategy 2 (multiverse):

Why is there something rather than nothing?

For 1 *Why does the only set of laws give rise to life?*

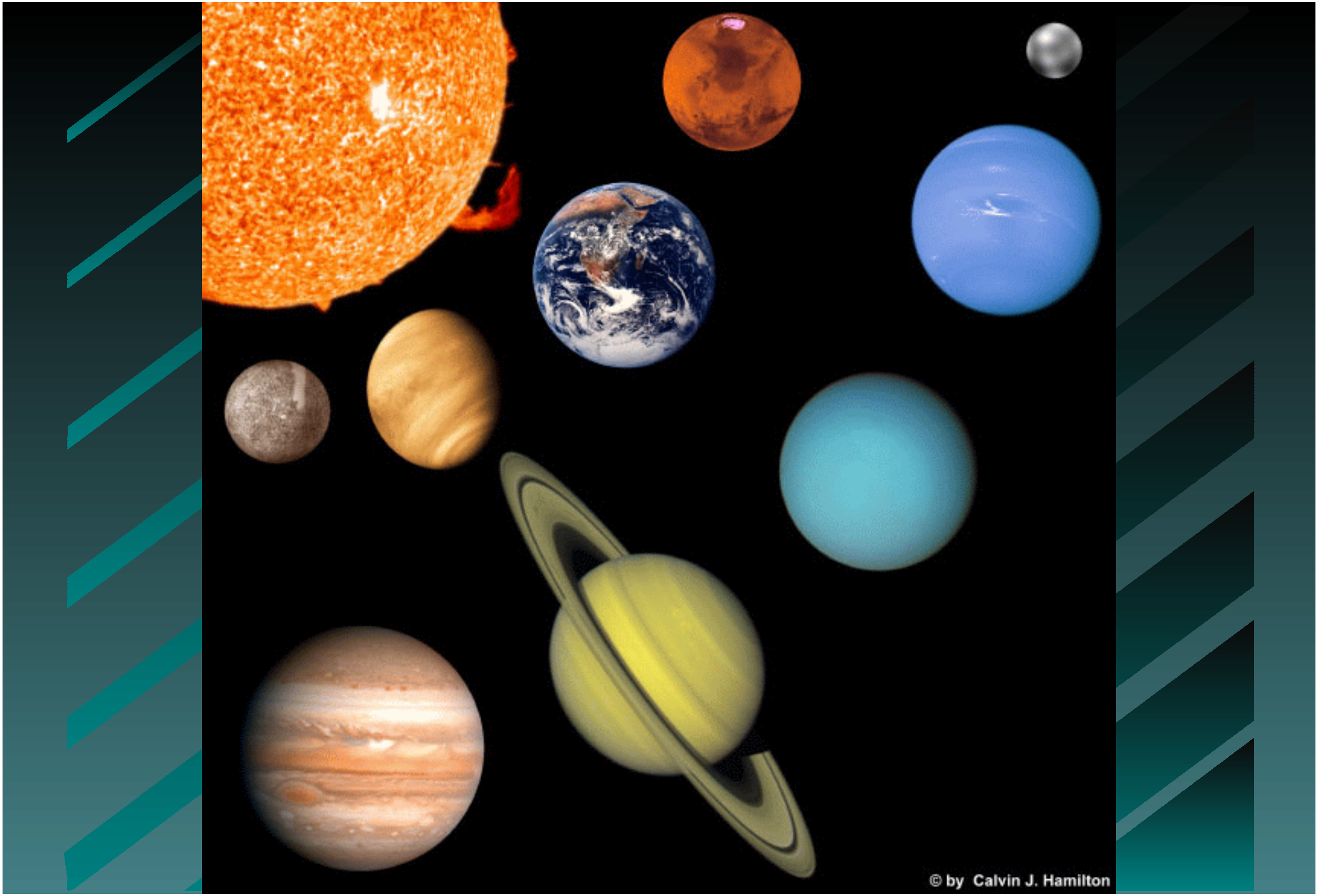
For 2 *Why this multiverse as opposed to another?*

A Brief History of Cosmology

- Chaotic cosmology
- Inflation
- String theory

Problems for multiverses

1. Physics speculative
2. Problem about infinities
3. Hypothesis not simple
4. Lack of predictability
5. What about claimed successes—e.g. Λ?
6. Fine-tuning still required
7. Amount of order in universe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Comparing the Explanations

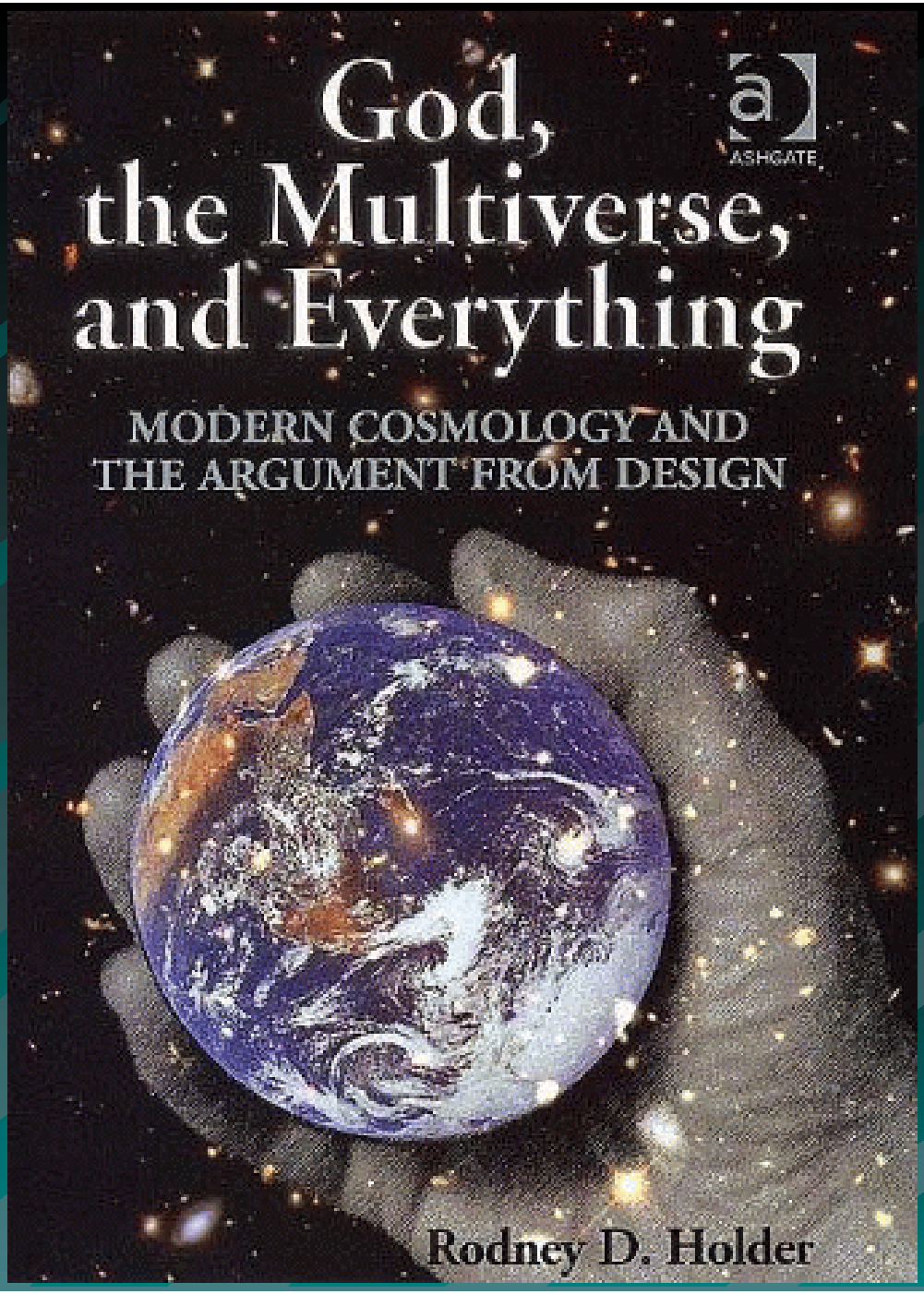
(1) Multiverse

- Not ultimate
- Complex (why *this* multiverse?)
- Doesn't explain why there should be life
- This universe looks too special

Comparing the Explanations

(2) God

- Provides ultimate explanation
- Simpler, more economical
- Explains why there should be life
- Explains why the universe is so special


God,
the Multiverse,
and Everything
ASHGATE
MODERN COSMOLOGY AND
THE ARGUMENT FROM DESIGN
Rodney D. Holder