Title: The Elusiveness of Time

Speakers: Jenann Ismael

Collection/Series: Lee's Fest: Quantum Gravity and the Nature of Time

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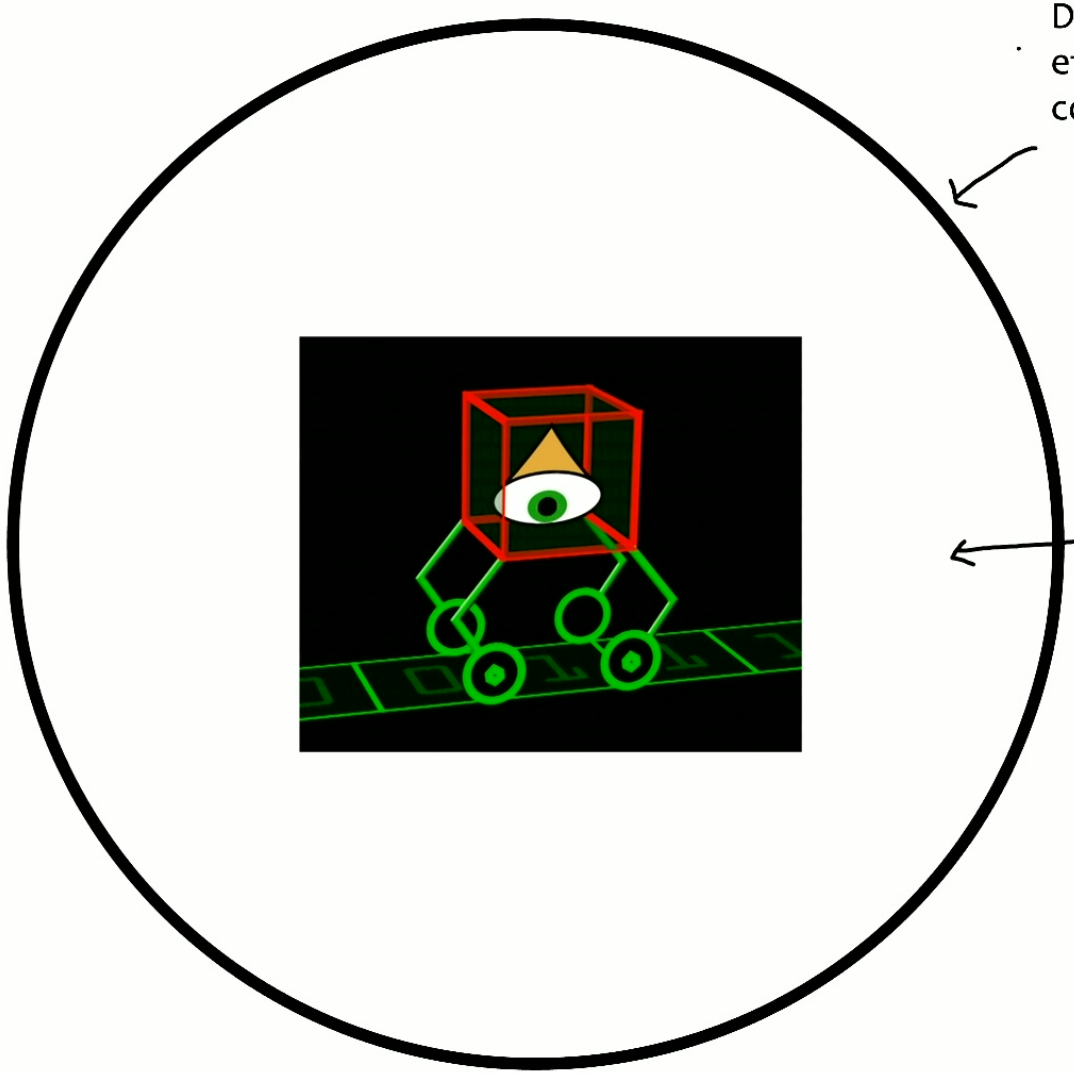
Abstract:

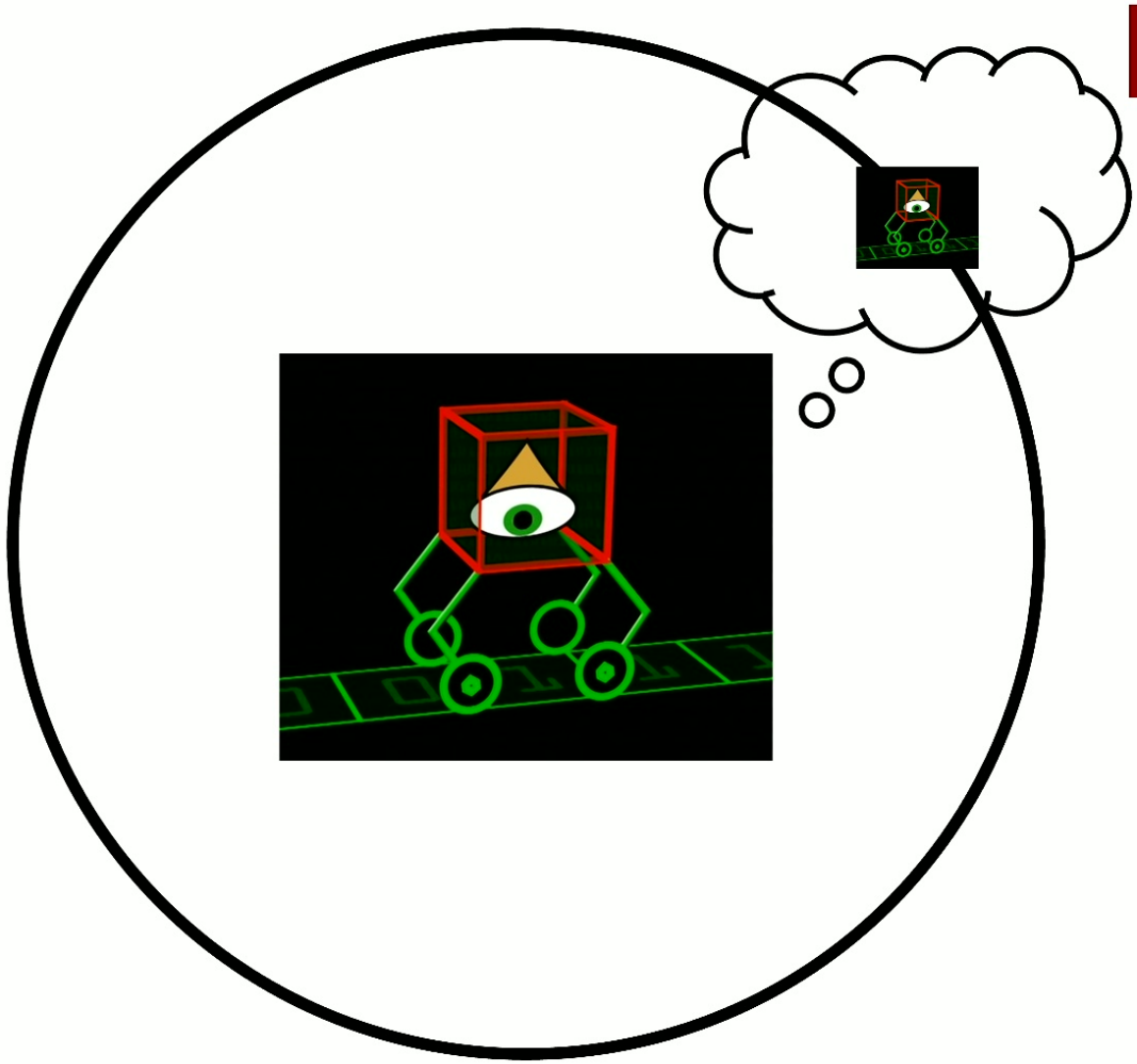
Lee’s most philosophical work is a probing challenge to the "timeless" view prevailing in much of physics. I’’ll say why I think he is right that the idea of the universe as a fixed totality of events is a mirage, and one that arises– as he argued – from extending techniques appropriate for open subsystems to the universe as a whole. Time (for any system in the universe) is irresolubly open-ended, ongoing, and incomplete.

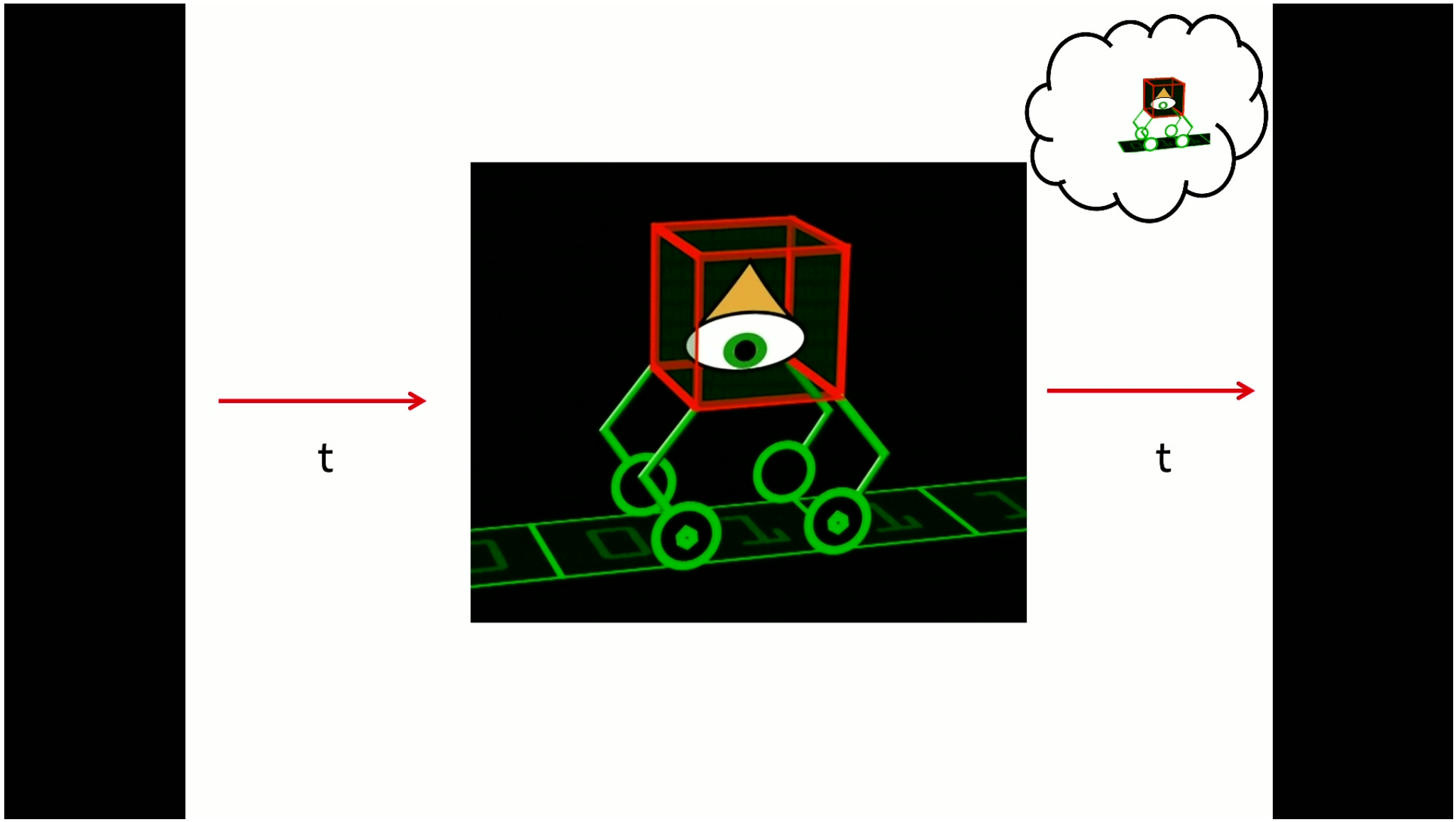

TIME REBORN
Lee Smolin
A STONE FALLS
THE PHYSICIST DESCRIPTION
THE "BECOMING" PICTURE
THE "META-BECOMING" PICTURE


Deterministic,
effectively
computable
Turing
Machine

- there is nothing weird about this universe.
- there is nothing pathological about the questions we are asking.
- there are many perfectly consistent ways for this toy universe can be.

- there are questions the TM can't answer truthfully about its universe
- **determinism** → the laws powerful enough to determine the future from the past
- **universality** → if the laws were powerful enough to generate the future from the initial state, the TM is powerful enough to generate an answer from initial data

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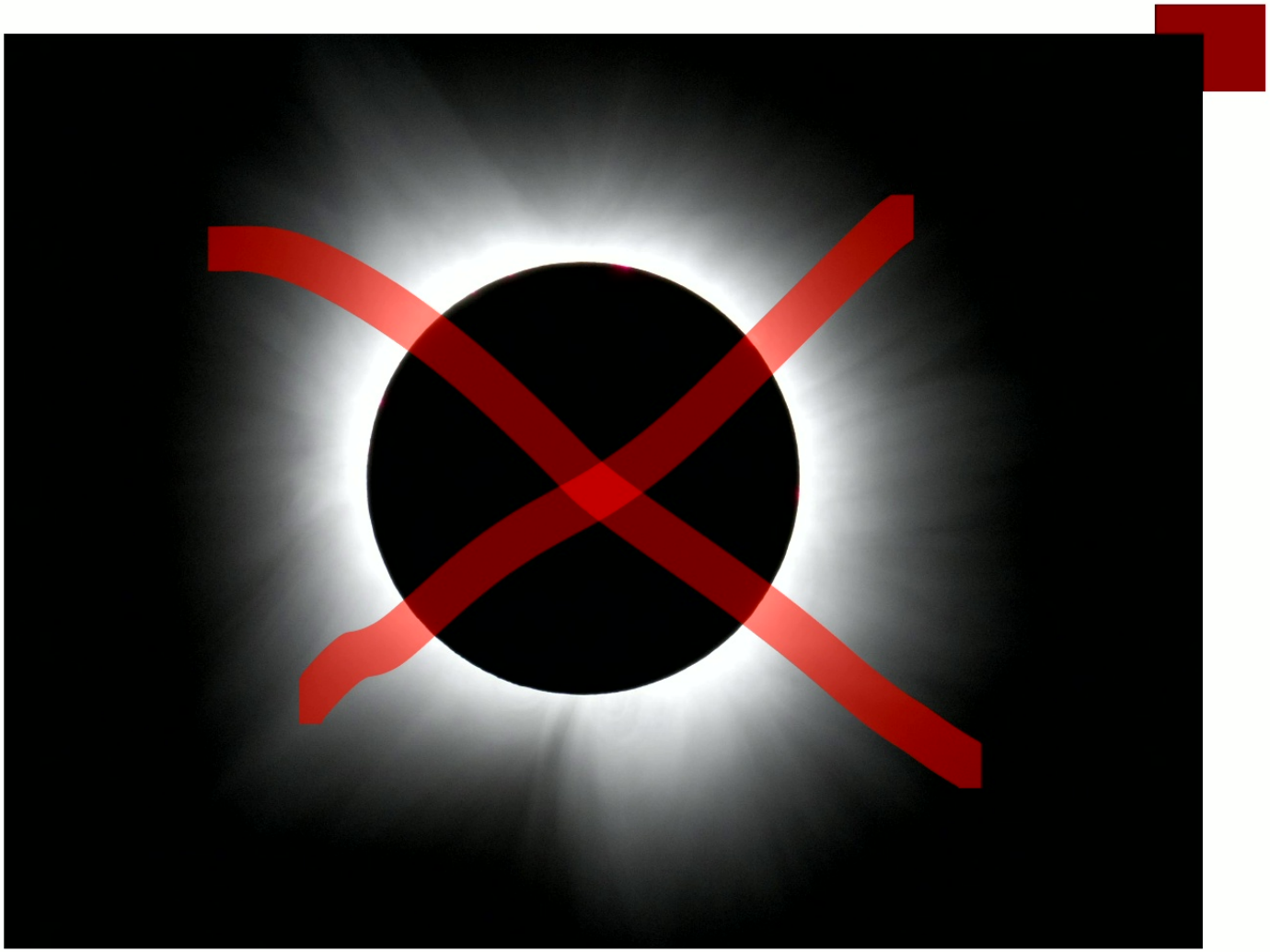
- This system trying to compute the future from the past given the laws,
- when it goes to compute its own behavior it hits a conditional branch:
  - if you decide to a then …
  - if you decide to b, then …

- The structure of the conditional branching means that the prediction for the system itself, takes the form of choice.




Thank you, Lee, for ever so much