

state the problem

- the two theories on the nature of temporal existence contradict each other
- One theory is that the present exists as a node on a pre-determined time line
 - There is no way to get off the time line, so just keep chugging along
- The other theory is that there exist an infinite number of present nodes on all of the possible time lines.
 - The time lines can intersect
 - at each intersection old nodes may merge and new nodes may fork
- With more analysis, it can be shown that the former (predetermined model) can conform to the free model.
- Show how you will solve/prove/analyze it
 - Further analysis of the free model allows insight to how the rigid model fits within it.
 - First, show that the free model is legitimate
 - legitimize Albert's claim
 - Show additional support throughout the rest of the story
 - Now, explain the model
 - Need to explain the model, otherwise we can't interpret it
 - What does a 'present' represent?
 - A person? Particle? the entire universe?
 - Answer is 'presents' represent state-spaces of the universe
 - Show how the free model is a superposition of rigid models
 - turns out that this is sensible
- The Free Model
 - Albert's Claim
 - Attempt to create a truly infinite labyrinth
 - Can't construct one physically
 - Immediately thought of tales
 - 1000 arabian nights
 - historic tales
 - A labyrinth you can't see - one in time that we're all part of from birth
 - The letter
 - " I leave to the various futures (not to all) my garden of forking paths."
 - Why not to all?
 - In some of those futures, Ts'ui doesn't exist, let alone his book!
 - It hits him - the book is the labyrinth with its walls set in time (as opposed to stone).
 - tests hypothesis with the riddle construction
 - If the answer is time, what word can't you use, etc.
 - **Important to note**
 - The Garden of Forking Paths (the book) is organized sequentially
 - has the same cardinality as the real numbers on the number line

- Fixed references (integers) with infinite series approaching each one
- More support
 - There are examples of characters in the story navigating the free model's labyrinth
 - "Ts'ui Pen must have once said: *I am withdrawing to write a book*. And another time: *I am withdrawing to construct a labyrinth*"
 - The two are synonymous, as the labyrinth is the book, but they were separated in time.
 - This is exemplifying a loop in time that Ts'ui Pen is experiencing
 - Albert repeats his actions when he retrieves the letter for the second time
 - Another loop in time, this time, the 'present' diverges toward Albert's death (but this was only made possible by it diverging towards Tsun's adoption of the free model.
 - Tsun is writing the letter himself, about the past
 - Tsun has full control over the description of the past
- Explaining the models
 - Visualizing the model
 - network of strings, along which balls of light representing the present can travel.
 - Balls are not restricted to individual threads
 - (maybe spiders crawling on webs is better?)
 - What do the 'present's represent?
 - individuals as Tsun suggests? (individuals are the present)
 - "Then I reflected that everything happens to a man precisely, precisely *now*; countless men in the air, on the face of the earth and the sea, and all that really is happening is happening to me..."
 - No, the overlap (intersection) of presents in that case would be insignificant (two individuals would be the same)
 - particles?
 - Not quite, same problem as above
 - a state space of the universe**
 - intersections would be incredibly significant, as two different time lines would converge to the same point and diverge from the same point
 - The question as to whether or not two presents converging on the same state would ever diverge, given the natural laws of physics, can be explained with the butterfly effect.
- The free model is a superposition of the rigid models
 - What is the rigid model?
 - "The author of an atrocious undertaking ought to imagine that he has already accomplished it, ought to impose upon himself a future as irrevocable as the past." (page 22)
 - suggests that the future is unalterable
 - If every possible 'present' exists, then every possible path through the network that is the free model must be taken
 - otherwise, every possible present doesn't exist
 - If every path is taken, then each path can be thought of as its own, unique, time line that

happens to intersect with others, but does not merge nor fork

- Now, the superposition of individual time lines is easily seen as the network as a whole.
- Additionally, included in the set of every possible time is that same set time-shifted by some constant.
 - Incredibly varied set of existences
 - not sure what to do about that.
- Show Tsun's support of the free model and how he uses it in the end.
- Conclude