

# Handout: Earl Conee & Ted Sider - Time

## The Problem: What Is Time—And Does It Flow?

The authors begin by interrogating one of the most intuitive beliefs we hold: that **time flows**.

- Common metaphors suggest motion: “*Time flies*,” “*Time marches on*,” “*Time stood still*.”
- Yet **motion is defined in terms of time**—so how could *time itself* move? What would it be moving *with respect to*?

This leads to a classic metaphysical puzzle:

***If time moves, must there be a second time—“hypertime”—relative to which time itself moves?***

The authors examine this conundrum and ultimately propose that we abandon the idea of time flowing altogether in favor of a radical alternative: the **space-time theory**.

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## I. Why Time’s Flow Makes No Sense

### Ordinary Motion vs. Temporal Motion

- Motion (e.g., a train traveling from Boston to Washington) is defined by **change in spatial position over time** (see *Figure 1*, p. 45).
- If time flows, what does *it* change with respect to? A second timeline?

### Hypertime and the Infinite Regress

- To say time moves with respect to *hypertime* just shifts the problem.
- We would then need *hyper-hypertime*, and so on—an **infinite regress** (p. 46).

- This solution is metaphysically extravagant and unsatisfactory.

### Time Moving With Respect to Itself?

- What if “time’s movement” just means **noon is present at noon, 3:00 at 3:00**, etc.?
- This is trivially true, but doesn’t explain any genuine *flow*. It’s analogous to saying “*Boston is here in Boston*”, which doesn’t imply that *space* moves (p. 47).

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## II. The Space-Time Theory (aka the “Block Universe”)

### Key Idea: Time is like space.

- The **space-time theory** treats time as one dimension in a **four-dimensional manifold**—space-time.
- Time doesn’t flow; it *is*. All points—past, present, and future—are equally real.

### Temporal Parts and Persistence

- Just as an object is made of **spatial parts**, it also has **temporal parts**—“time slices” (p. 49).
- *E.g.*, the person in the year 2000 is one temporal part of a larger four-dimensional entity.

*“The person herself is the sum total of all her temporal parts.”* (p. 49)

### Three Analogies Between Space and Time (p. 50–51):

1. **Reality**: Distant stars are real—so too are distant times (past and future).
2. **Parts**: Objects extend across both space and time; they have spatial and temporal parts.
3. **Indexical Relativity**: “Here” and “Now” are indexicals. Just as there is no *absolute here*, there is no *objective now*.

**Conclusion:** The idea that “now” is metaphysically privileged is an illusion.

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### III. Objections to the Space-Time Theory

The authors present and respond to three major criticisms:

#### 1. Change Is Not Just Spatial Variation (p. 53)

- Objection: Space-time theory reduces **change** to mere **spatial heterogeneity**.
- Reply: True, both are forms of variation, but this isn't a *problem*. Objects vary across space and time, and both types of variation can be real.

#### 2. Motion Is Directional in Time, But Not in Space (p. 54–56)

- Objection: Objects can move both ways in space, but only **forward** in time.
- Reply (via Richard Taylor): To compare motion across space and time, we must fully reverse references.
  - A proper time-analogue to “moves back and forth in space” is “*exists at multiple times at different locations.*”
  - Understood this way, **back-and-forth motion in time is possible**, e.g., clapping hands converging (see *Figures 7–9*, pp. 55–56).

#### 3. Causation Is Asymmetric in Time (p. 57)

- Objection: We can't affect the past, only the future—unlike in space, where causation can span in any direction.
  - Response: This may be a **contingent feature** of the world, not a necessary one. If time is like space, **backward causation should be conceptually possible**.
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## IV. Time Travel and the Conceptual Possibility of Backward Causation

The authors investigate whether the space-time theory makes **time travel** conceptually coherent.

### Time Travel and Paradoxes

- In stories like *Back to the Future*, contradictions arise:
  1. McFly prevents his own birth—so *where did he come from?*
- The authors distinguish between two types of paradoxes:
  1. **Temporal sequencing vs. experienced sequencing:** Time travelers experience events out of temporal order—but this isn't incoherent (p. 58).
  2. **Causal loops:** A time traveler causing their own non-existence seems paradoxical.

### Resolving the Paradoxes: Consistency Over Contradiction

- Time travel is **possible so long as the narrative remains internally consistent**.
- *Terminator* is offered as a well-constructed example:
  - John Connor sends Reese back to protect Sarah Connor, who gives birth to John.
  - Causal loop? Yes. Contradiction? No (p. 59).

### The Significance of Self-Knowledge

- Reese's predicament raises epistemological questions:
  - Can he **trust his memory** of the future when confronted with imminent danger?
  - Is his **confidence rational**?

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- Sider: Even within a self-consistent time travel scenario, **psychological tension and doubt remain real** (p. 60).
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## The Solution: Embrace the Space-Time View

Sider's answer to the metaphysical riddle of time is bold:

***Time is not a river flowing past us. Rather, it is a dimension in a four-dimensional block universe.***

- All times—past, present, and future—*equally exist*.
- Apparent flow is a **feature of human consciousness**, not metaphysics.

## Supplements and Broader Themes

- Ties into **eternalism** vs. **presentism**: Is only the present real, or is all of time equally real?
  - Links with **indexical skepticism** and **the metaphysics of persistence** (esp. temporal parts).
  - Raises epistemic questions about **knowledge of time** and **evidence under uncertainty**.
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