Illuminating Time Travel - Liang On Forward Time Travel: Three Possible Hypotheses

Abstract

This paper provides a structured response to Jingkai Liang's *On Forward Time Travel*, focusing on forward time travel paradigms: "stretched-out streaks," where travelers experience slowed passage of time, and "broken streaks," representing instantaneous leaps forward. Using the Philosophy of Ethical Empirical Rationalism, we introduce three key insights—termed *Hume's Beacons*—to examine continuity of identity, the measurability of time, and the ethical considerations involved in skipping time. Each insight is explored through hypotheses rooted in empirical observation, rational justification, and ethical application, offering Liang a framework for further analysis of forward time travel. Visual models accompany each hypothesis to provide clarity. This paper aims to expand the discourse on temporal metaphysics by grounding theoretical time travel concepts in empirical rationalism and ethical reasoning.

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Introduction

In *On Forward Time Travel*, Jingkai Liang explores forward time travel through two paradigms: "stretched-out streaks," representing travel at a slowed rate, and "broken streaks," symbolizing instantaneous leaps forward. Liang connects these ideas to real-world phenomena like cryosleep and proposes that these time travel methods introduce questions about continuity, identity, and ethical obligations.

Our Philosophy of Ethical Empirical Rationalism extends Liang's exploration through three foundational lenses—empirical observation, rational justification, and ethical application. By integrating Hume's philosophical methods and empirical rational principles, we investigate three major considerations for Liang's framework: identity continuity, time as a measurable phenomenon, and the ethical implications of time travel. Each concept is clarified through targeted *Hume's Beacons*—points of insight drawn from empirical and rational foundations—accompanied by hypotheses and visualizations to support further analysis.

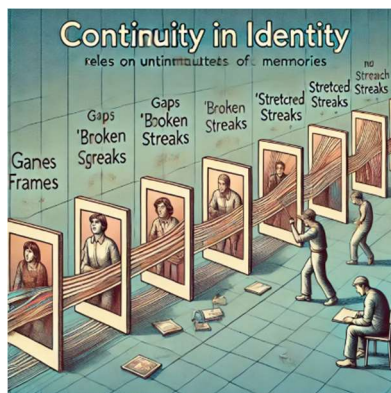## 1. Continuity and Identity Through Temporal Disjunction

Hume's Beacon Insight: The continuity of personal identity is challenged in "broken streaks," where travelers lack the continuous experiences that typically sustain a coherent self-concept.

Hypotheses:

- *Empirical Observation*: If memory continuity is essential to identity, then the absence of experience in "broken streaks" results in memory gaps, disrupting self-perception.

- *Rational Justification*: Instantaneous travel suggests that identity must be flexible to account for temporal discontinuities.

- *Ethical Application*: Time-skipping travelers might hold an ethical responsibility to maintain continuity with the society they "left behind."

Image Solution:

This timeline with "identity frames" represents moments of memory and self-perception, showing gaps in "broken streaks" and stretches in "stretched-out streaks." This visualization underlines the reliance of identity on a sequence of experiences.

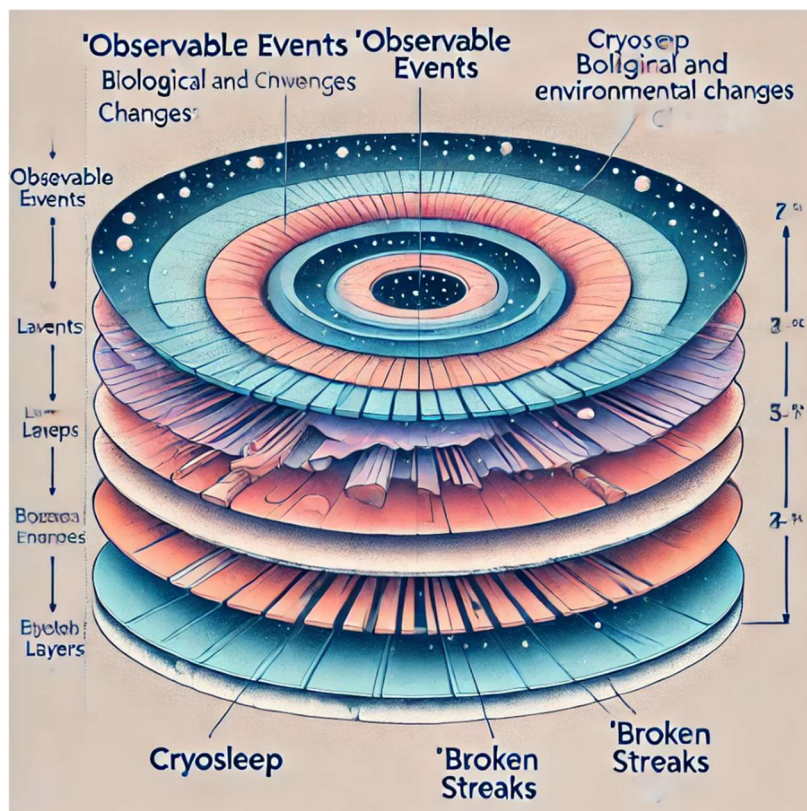## 2. Time as a Measurable and Observable Phenomenon

Hume's Beacon Insight: Rather than treating time as an abstract flow, "stretched-out streaks" could be understood as measurable changes in observable events, such as physiological markers in cryosleep.

Hypotheses:

- *Empirical Observation*: Cryosleep slows biological processes, providing measurable evidence of time dilation.

- *Rational Justification*: Time can be conceptualized through observable changes rather than as an intrinsic "flow."

- *Ethical Application*: Traveling forward requires awareness of the effects on society, potentially creating a measurable "time debt."

Image Solution:

This layered circle design illustrates time through "observable events," where cryosleep is a compressed layer and "broken streaks" are gaps. This model emphasizes time as measurable through its effects rather than as an inherent continuum.
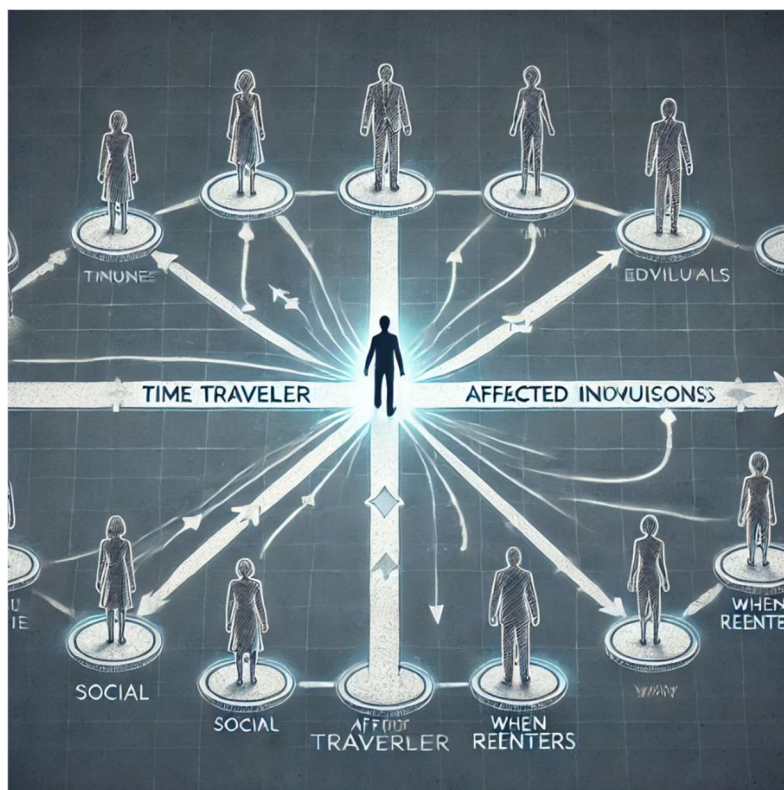
3. Ethics in Experiencing or Skipping Time

Hume's Beacon Insight: Forward time travel disrupts natural cause-and-effect sequences, which raises questions of moral responsibility toward relationships and social roles left behind.

Hypotheses:

- *Empirical Observation*: Absences due to time travel impact social dynamics and can be observed through shifts in behavior of those left behind.

- *Rational Justification*: Ethical responsibilities should consider the effects on those affected by the absence.

- *Ethical Application*: Forward travel may require a "code of conduct" to address the traveler's obligations upon reentry.

Image Solution:

A branching timeline represents a traveler skipping forward, with paths symbolizing individuals and social roles affected by their absence. Branches diverge upon reentry, illustrating how time travel impacts relationships and ethical responsibilities.

Conclusion

Jingkai Liang's paradigms of "stretched-out" and "broken streaks" offer a provocative view of forward time travel. By examining these concepts through Hume's Beacons, rooted in our Philosophy of Ethical Empirical Rationalism, we explore new dimensions of continuity, time's measurability, and the ethics of temporal disjunction. These insights suggest that forward time travel requires consideration of identity, measurable change, and ethical accountability.

This analysis proposes that future studies consider time travel not only as an experiential anomaly but also as a phenomenon grounded in observable, rationally justified principles. Such a framework enhances our understanding of time, identity, and morality, contributing to both metaphysical and ethical discourse on the nature of temporal movement.

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