Time Travel and Philosophy

Dr. Alasdair Richmond

In this final session, we will think about some issues in metaphysics: a branch of philosophy that investigates the ways that reality could intelligibly be. Our case study will be the possibility, or otherwise, of time-travel. Some have thought that the apparent possibility of creating a machine that we could use to transport a person backwards in time can be ruled out just by thinking about it. But is time-travel really logically impossible? What would the universe have to be like for it to be possible? And can we know whether our universe fits the bill?

Part One - What Might Time Travel Be Anyway?

David Lewis 1941-2001 – The Paradoxes of Time Travel 1976

Involves two ways in which time can be registered
- External Time
- Personal Time

They mostly march in step with one another

Forward time travel personal and external share the same direction…but the measured time is a different duration.

Backward time travel personal and external diverge is direction

According to David Lewis, what would time travel involve?

A reversal of causal processes, so that everything happens backwards rather than forwards.

A discrepancy between "personal time" and "external time": i.e. time travel takes place when our subjective or personal experience of time does not seem to match what is going on in the external world.

A discrepancy between "personal time" and "external time": i.e. time travel takes place when personal time has a different duration and/or direction to external time

None of the above: Lewis held that time travel is logically impossible.
Forward time travel is embedded in Einstein’s Special Theory of Relativity 1905
Backward time travel General Theory of Relativity Albert Einstein in 1918

Part Two - Grandfather Paradoxes

The Grandfather Paradox – it would be possible to create contradictions.

Which of the following did David Lewis accept? (Select as many boxes as is appropriate.)

That contradictions are possible.
That contradictions are impossible
That time travel necessarily involves contradictions.
That time travel does not necessarily involve contradictions

Imagine a traveler going back in time and eliminates a grandfather…thus removing one of your peers from existence and removing yourself.

Why is it logically impossible to assassinate your own grandfather before he had produced your mother or father?

Because time travel is impossible.
Because in doing so you would make it the case that you had never existed; but in order to assassinate your grandfather you must exist
Because we do not yet have the technological capability to travel in time.
Because we will never have the technological capability to travel in time.

Compossibility – relative to a set of facts

"Compossibility" is a notion that has to do with...

One set of facts being possible relative to another set of facts
One set of facts being possible now, but not in the past.
One set of facts being possible in the past, but not now.
The possibility of a person existing, even though his grandfather does not exist.

**Part Three - Two Senses of Change**

Traveling to the past is logically possible, but only if the actions of the traveler do not influence the future.

Lewis thinks a person can be concretely in the past…and make a difference.

Two senses of change – replacement change and counterfactual changes

Replacement change – like a shattered glass.

Counterfactual change – like an alarm clock that goes off and thus changing the events of the day. A set of events is dependent on the catalyst event.

*An event X counterfactually "changes" an event Y (in other words, Y counterfactually depends on X) if and only if...*

If X had not occurred, Y would not have occurred

If X occurs, it is logically impossible for Y to not occur.

X and Y both in fact occurred

X is in the past and Y is in the future.

**Part Four - Causal Loops**

Casual loop – If a person travels back in time to give a struggling writer, Shakespeare, a complete copy of his works from the future. Who exactly writes the book?

*What constitutes a causal loop?*

A chain of events such that an event is among its own causes

A chain of events that creates a paradox.

An impossible chain of events.
A chain of impossible events.

A casual loop is very strange – where does the information come from anyway?

There are causal changes that appear from just nowhere...like the Big Bang

**Causal loops pose a puzzle: what is the entry point for the information in a causal loop? What is David Lewis' response?**

There is no entry point for the information in a causal loop - the information does not exist.

There is no entry point for the information in a causal loop - the information simply exists.

There is no entry point for the information in a causal loop - causal loops are not possible.

There is an entry point for the information in a causal loop - but we have not yet found out what it is.

**Part Five - Where Next?**

Time travel takes place in many, many histories.

Branching histories...meaning when you change something in the past, it branches to different timelines.

**Deutsch and Lockwood's account of time travel involves multiple histories. David Lewis' account, as discussed in previous videos, is importantly different: Lewis is concerned with time travel within a single history. Is this true or false?**

False: Lewis' account of time travel also involved multiple histories.

False: Deutsch and Lockwood's account focused on time travel within a single history.

True: Lewis' account of time travel focused on time travel within a single history.

False: Deutsch and Lockwood's account does not involve any histories at all.
Our aspiration is to become a place of first choice in the minds of the world.

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