

Time

1. Timely Questions: We are all familiar with time. When you arrive to class (on time I hope!), you arrive at a certain time. But, what is time? Here are some weird questions:

- **The Flow of Time.** Time seems to 'pass'. Time 'marches on'. We are only ever present in a single moment—but no sooner than we are present with it than it is immediately whisked away into the past. But, what is the explanation of this? Why does time FLOW?

- **The Rate of Time.** "Flow" seems to suggest *motion*. But, that can't be right; for motion has a RATE or SPEED—but these things are themselves measured by time! If time flowed at a particular rate or speed, we could ask: How fast does time flow? One second per second? But, that is nonsensical! (Perhaps there is a 'hypertime' by which the rate of time's flow is measured? But, then, how fast does 'hypertime' flow?)

- **The Direction of Time.** Time not only flows, but it flows in a certain DIRECTION. Time seems to march forever 'forward'. But, what does that mean? (And why don't we think it is in fact flowing BACKWARDS!?). When we apply directional labels to space (up, down, left, right, North, South), they are subjective and arbitrarily chosen. The direction of time, on the other hand, does not seem to be arbitrary, or chosen by us. Why is this?

- **Thing or Relation?** Is time a THING? Or is it merely a RELATION? A related question: Is change dependent on time, or is time dependent on change? A thought experiment: Imagine that all motion in the universe stops (no observers having thoughts, no clocks ticking, no change at all occurring) for an entire year; i.e., an entire YEAR passes where nothing at all happens. Did I just describe a coherent scenario? If so, then change is ontologically dependent upon the existence of time; if not, then it is the other way round; i.e., time's passage just seems to be something constructed OUT OF change.

- **Temporal Properties.** Are there temporal properties? It seems like the sun's rising next Sunday is an event that presently has the property of *being future*. But, for a little bit, it will have the property of *being present*; and then it will forever have the property of *being past* (at least, that's one view of time). But, what does this mean? What makes an event trade in one temporal property for another? Are there a bunch of events sitting around waiting to become present? And where do they go when they become past? Do they still in some sense EXIST once they slip away into the past?

- **Which Times Exist?** Surely, we should agree that the PRESENT exists. The present is real. We can see it, observe it. But, what about the past and the future? Do they too exist? If so, how? The past and the present do not seem to be observable. So, if they exist, how and why are they hidden?

2. Three Views of What Times Exist: Let's focus on that last question. Assuming that the present certainly exists, here are 3 views about which other times exist (if any):

- (1) **Presentism:** Only the present exists. Neither the future nor the past exist.
- (2) **Growing Block:** Both the past and the present exist. The future does not exist.
- (3) **Eternalism:** The past, present, and future all exist.

[Note: Of course, the view that only the present and the future exist is also a possibility, but surely that view is less plausible than any of the three above?]

(1) **Presentism.** At first glance, perhaps Presentism is the most compelling view. After all, in what sense could it be true that the past and the future EXIST? Are we to believe that right now, it is true that Julius Caesar exists, but with the property of pastness? No, there seems to only be the here and now. Yet, there are several problems with Presentism:

1. **Length of the Present.** How "long" is the present? Is it a minute? A second? A millisecond? It seems arbitrary to pick any one of these. Furthermore, if the present moment has any extension at all, then the present moment will be such that SOME of the present has already happened, while SOME of the present is still yet to come. But that's absurd. So, the present moment must be no more than a single instant—some infinitesimally small slice of time with no duration at all. But, is that coherent? And what if durationless time slices are impossible? (e.g., the physicists say that durations smaller than "[Planck time](#)", or roughly 5.39×10^{-44} seconds, might not be physically possible)

2. **Simultaneity.** Physicists tell us that there is no such thing as an absolute 'present'. That is, there is no privileged reference frame from which we can judge the [simultaneity of events](#) (and [here](#)). (See also the [Ladder Paradox](#); also [here](#), and [here](#)). Due to the relativistic nature of time (which is responsible for weird things like the [Twin Paradox](#); also [here](#) and [here](#)), what I perceive as "now" might be in YOUR past, or future.

[Warning: Viewing these videos may make your mind explode.]

3. **Relations Between Times.** It seems true that Obama's birth is earlier than his death. But, 'earlier than' is a relational property. However, relational properties are properties instantiated by TWO THINGS (*i.e., relations require RELATA*). In other words, the two things must EXIST. But, if neither the past nor the future exist, in what sense is it true that Obama's birth is EARLIER THAN his death?

4. **Truthmakers for the Past.** Intuitively, it is TRUE that, e.g., Abraham Lincoln was assassinated in 1865. But, many philosophers believe that all truths require 'truthmakers'; that is, some thing that exists that MAKES a proposition true. But, then, what THING exists to make the proposition <Lincoln was assassinated in 1865> true?

[*Note: Presentism also seems incompatible with perdurantism, or the view that things are spread out over time and have temporal parts. We'll discuss this later in the semester.*]

(2) **Growing Block.** The growing block theory proposes that reality is like a block, with more and more layers continuously added to it. (*Alternatively, think of the present as the outer surface of a tree, and the past as the concentric rings of growth within.*) The past exists, as does the present—but at every moment, a new present moment gets added to it. Each present moment is a new accretion onto the past. Unfortunately, growing block has problems 1-3 as well. It only seems to fare better than presentism on #4.

(3) **Eternalism.** None of the problems above apply if ALL times exist.

However, eternalism has several problems of its own. Namely, if the future and the past are just as real as the present, then it is difficult to explain (a) why the **present seems special** in some way, i.e., has some privileged status that the past and future do not, and (b) why it seems that **time flows**, and (c) how **change** occurs.

(a) **The privileged present.** Eternalists* (**at least, eternalists who are "B-theorists"; see deleted lecture below*) insist that—contrary to how it may seem—the present is NOT special. It is just wherever one happens to be when one says "This is NOW!".

This may be easier to understand this if we think about how space is also like this: Is "HERE" somehow special? No. It's just wherever one happens to be when one says, "This is HERE!". If I utter this in Virginia, then Virginia is "here". If I utter this in India, then India is "here". Neither place is any more real than the other. There is no privileged "HERE". Now think of the "present" as just like that. There is no privileged present either.

(b) **Change.** Eternalists* explain change in terms of 4-dimensionalism. We'll discuss this in detail later in the semester. But, here's the basic idea: The individual whom we call 'Barack Obama' is really a 4-D space-time worm (extended in 3 dimensions of space AND 1 dimension of time). What we call change—e.g., the change from sitting to standing—is just Obama's having the property of being seated in one time slice, and then the property of being upright in a later time slice. That is all there is to change.

As David Lewis puts it, change in time is no different than "change" in space. Sometimes we say that the landscape "changes"—but what we mean is simply that there is a difference between, e.g., the eastern and western part of the land. We say the landscape "changes" from mountain to valley. Eternalists* say that temporal change is just like that. It is nothing more than a difference between one temporal part and another.

(c) **The flow of time.** Eternalists* admit that they cannot explain the flow of time. Why does time seem to FLOW? They state that this is merely an illusion. It seems to flow merely because all times stand in an ordered relation of 'earlier than' or 'later than' to other times. But, that is not very satisfying.

The Moving Spotlight: Some eternalists disagree (*they reject B-Theory and adopt A-Theory instead*). They claim that all times DO exist, but that there nevertheless IS a privileged present that flows across the timeline. It is as if there is a 'moving spotlight' that moves along the timeline, casting a special "glow" on one time after another.

The problem is that no account is offered for what this spotlight IS (other than the metaphor), nor HOW or WHY it moves across the eternal timeline. (*It also owes a response to McTaggart's criticism of A-theory. See below.*)

McTaggart's Paradox

(*The deleted hurricane day lecture on A-Theory vs. B-Theory.*)

We can think of time as being one (or both) of these two types of series:

A-Series: Times have the property of being past, present, or future. But, which one of these properties a time has changes. (A future time becomes a present time, becomes a past time). Which time is the present is constantly in flux.

B-Series: Times have the property of being earlier or later with respect to other times. The B-Series is STATIC. That is, if 2000 is earlier than 2020, it is ALWAYS earlier than 2020. There is no privileged present.

All presentists and growing block theorists are A-theorists (because, for them, time is not static. The present MOVES.). Eternalists are *usually* B-theorists (with the exception of 'moving spotlight' eternalists). For them, the nature of time is merely that of an ordered series, and everything to one side of a moment is 'earlier than' while everything on the other side of a moment is 'later than'. Think of the distinction this way:

On A-Theory:

Lincoln WAS assassinated in 1865.
You ARE enrolled in metaphysics NOW.
The Paris Olympics WILL occur in 2024.

On B-Theory:

Lincoln's assassination occurs 154 years BEFORE 2019.
Your enrollment in metaphysics occurs in 2019.
The Paris Olympics occur 5 years AFTER 2019.

On the basis of considering these two options, A-Theory and B-Theory, McTaggart famously argued that there is no such thing as time. He argued for this in 2 steps:

- (1) If time exists, it must be an A-series (not a B-series).
- (2) The A-series is impossible.
- (3) Therefore, time does not exist.

Let's look at each premise in turn.

(1) If time exists, it must be an A-series (not a B-series).

(a) **Change.** McTaggart claimed that a B-series cannot be what time is, because a B-series cannot account for change.

On the B-series, all facts about things that occur in time are really just tenseless facts. If Lincoln's assassination occurs 154 years before 2019, it will ALWAYS occur 154 years before 2019. But, this way of thinking about time doesn't seem to account for change.

The death of Queen Anne is a change. The nature of the change seems to be that, first there was no death (it was in the future), and then the Queen's death happened (it moved into the present in 1714), and then her death slipped away into the past. But, on B-theory, Queen Anne's death is just ALWAYS in 1714. It is static. It does not change.

Think of it this way: On B-theory, all events are just static things in different locations in time. But, how can a death's being located in 1714 and NOT in 1713 constitute a real change? B-theorists are fond of saying that time is static like space. But, then that would be like saying that, because there is a chair in location-1, but not a chair in location-2, this constitutes a CHANGE. But, that is absurd. Some other worries about B-theory are:

(b) **The privileged present.** The present DOES seem privileged. B-theory says that it is not. On B-theory, 2019 is no more real (i.e., its existence is no more privileged) than 1919 or 2119. Abraham Lincoln's existence is no more or less real than Barack Obama's.

(c) **The flow of time.** If all times exist equally, why do I experience its flow? B-theory cannot explain this. On B-theory, time does not really PASS. The entire timeline just IS.

Conclusion: McTaggart concludes that time cannot be fundamentally a B-series.

(2) The A-series is impossible.

McTaggart then argued that an A-series could not exist, because it would lead to a contradiction. Here's a little dialogue to explain why:

McT: On A-theory, events have the properties of futurity, presentness, and pastness. But, that's impossible. No event can have all three of these properties. That would be a contradiction.

A-theorist: But, you're missing the point. No event has all 3 of these properties AT THE SAME TIME. First, an event has futurity. Then, it has presentness for a bit. And then it has pastness. This is not a contradiction.

McT: Okay. But, now consider the event of the 2024 Olympics in Paris (call it E). You're saying that RIGHT NOW, that event has the property of futurity. But, LATER, it will have the property of pastness. So, what you're really saying is that E presently has the second-order temporal properties of present-futurity, and also future-pastness (it is PRESENTLY in the future, and it WILL BE in the past). But, LATER, it will have the property of past-futurity (i.e., it WAS in the future). But, no event can have all of these properties. That would be a contradiction.

A-theorist: Again, you're missing the point. No event has all of these properties AT THE SAME TIME. As you've said, it does not have the property of past-futurity right NOW. It WILL have that property later, once it is in the past.

McT: Ah, but now you're invoking THIRD-order temporal properties. You're saying that the event really has present-future-pastness (it is presently such that it will be in the past) and future-past-futurity (later it will be such that it was in the future). But, no event can have both of these properties. That would be a contradiction

... And so on. We're off on an infinite regress.

Note that the problem is that we're trying to explain away the problem of events having all of their temporal properties together (past, present, future) by pointing out that they do not have these properties AT THE SAME TIME. But, then, we've invoked time to explain time. If we do that, we're off on McTaggart's regress.

Due to this paradox, McTaggart said that time cannot be an A-series. But, remember that he had ALSO already rejected the B-series. Ultimately, then, McTaggart believes that there is no such thing as time at all. Time is merely an illusion. Dude...