

Q&A: THE METAPHYSICS OF TIME

14 APRIL 2020 | PHILO 36000 | HUNTER COLLEGE | DANIEL W. HARRIS

Is time a human creation?

I've always thought of time as a social construct, one which we humans created and gave meaning to. We seem to be the only specie that follows time meticulously. To some extent it makes me question why is it that even if we don't know if there's one absolute correct time, a correct time seems to exist? Moving on from that, I was unconvinced when the book stated that time's passage is objective and that it doesn't pass differently for different people. —Chelsea

...isn't time just a perception of existence overall? —Cynthia

“We ordinarily think time’s passage is objective or absolute (139). => Q: I understand what this line means, but can we possibly say that it is human memory dependent? —Chateldon

I think there are some very good reasons to doubt that time is a human creation—either that it is a social construct or a feature of human perception.

Consider some of the things that you might learn in a geology class. For example, we have excellent evidence that what geologists call Hadean eon was a 600-million-year-long period of time on earth that took place between 4.6 and 4 billion years ago. This eon began with the formation of the earth and ended at the time when the first life on earth began to exist. Scientists have discovered rocks in Greenland, Canada, and Australia that were formed 4.1 billion years ago, during the Hadean. Our current best theory of how the moon was created is that an asteroid struck the earth during the Hadean, about 4.5 billion years ago, and kicked up material into Earth’s orbit that eventually coalesced to form the moon. These are all things that our best current science tells us, but they are all things that took long periods of time to happen, and they all happened long before humans (or, indeed, any life) existed. If that’s correct, how could time be a social construct, or a matter of human perception? Time was passing long before we showed up!

“Time doesn’t pass differently for different people” (139). => Q: Really...? How can we compare them? What about the famous flea story?

Like in many other domains, I think we need only distinguish appearance from reality here. Time may seem to pass more slowly for one person than for another (or for the same person at different times). But why not say that this is just an illusion—a way that their experience presents them with a distorted representation of the world around them? We know that there are similar illusions affecting how we perceive space—for example, [the Müller Lyer Illusion](#) (←link), so why not think that our way of perceiving time is susceptible to similar illusions?

On the Relativity of Time

One of the things I found difficult about this reading was the difficulty posed by the train thought experiment. Patrick is not at the same location as the lightening when it strikes. He is some distance away. Due to this fact he does not see the lightening right away, because it must travel. By the time the lightening has reached him, that distance has changed. According to Ney "Since there is no objective fact about who is at rest, in this case there is no objective fact about who is right about whether A and B are simultaneous." I don't see why it is relevant who is at rest. It seems more relevant the question "has the observes distance from A or B changed from the time the lightening struck until the time they saw it?" the answer to that question is "Yes" for Patrick. It is possibly "No" for Emily. —Miriam

When Ney says that there is no objective fact about who is at rest, I think that the point is that everyone is moving from the point of view of some reference frames but not others. For example, there are reference frames from the point of view of which the earth is rotating, and since we are on the surface of the earth, we are all moving about 1000 mph along with this rotation. On the other hand, there is a reference frame according to which the earth is moving around the sun at about 67,000 mph, and since we're moving along with it, we're moving at that speed too. And then there is a reference frame from whose point of view the solar system is moving around the galaxy at about 514,000 mph, and so that's how fast we're moving. And finally, we could adopt a reference frame according to which the milky way galaxy is moving at about 1.3million mph away from the location of the big bang, and so that's how fast we're all moving. If we adopt any of these reference frames, then both Patrick and Emily are moving away from the lightning at very fast speeds. But we tend to ignore these reference frames when we're doing calculations like the one in the thought experiment. We adopt a reference frame in which we take Emily's location to be a fixed point and do calculations based on that. What Ney is pointing out is that, from the point of view of physics, we could just as correctly have taken Patrick's location as a fixed point and done the calculations about the movements of everything else based on that. The results would be just as correct from the point of view of physics, since performing any such calculations always requires making some arbitrary choice to adopt some reference frame or another. Since there is no objective reference frame—no non-arbitrary choice about what to hold fixed when calculating the velocities of everything else, it follows that facts about simultaneity are relative to a reference frame.

To be clear: I don't think that Ney has explained the last step of this argument in adequate detail. I think that's because the real argument depends on knowing more about the theory of relativity than she can reasonably explain in this book. There's a nice quick explanation of this in [this youtube video](#) (←link). But if you want to *really* understand the relativity of simultaneity, you would need to learn more about the theory of special relativity than I can competently teach you!

Ontologies of Time

"They are no longer real. But they did happen. They were real" (138). => This would be an always question though. How can we distinguish between which "actually" happened, are in dreams, are memories of dreams, imagination, introspection, movies I watched, etc..., because all seem to be phenomenologically the same? The confusion is always there every day. —Chateldon

In practice, I think we have fairly reliable ways of knowing which aspects of the past experience are real and which weren't. We double check that the experiences of different people corroborate each other, for example. We look for presently existing evidence of what happened in the past, including physical evidence other than our memories. For example, if you remember watching Tiger King last night and aren't sure if it really happened you can ask someone else if they also remember it (if you remember watching it with someone else), or you can check your Netflix history. All of the forms of evidence used by historians are just more sophisticated versions of these strategies.

[What is the motivation for the shrinking block theory? —Miriam](#)

My impression is that Ney raises the shrinking-block theory for the sake of completeness, but struggles to give us a reason why anyone would believe it, in part because few people have given us any such reasons. What she relies on are metaphors. For example, a candle works like a shrinking block: the parts where it will be lit in the future exist, but the parts where it was lit in the past no longer exist.

I suppose I could imagine someone getting into the shrinking-block theory for epistemological reasons: there is a sense in which the future is **more** epistemologically available to us than the past. If we want to know about what is going to happen at a certain time and place in the future, we can always make sure we're in that time and place when it happens and take observations. But if we want to know something similar about the past, and we don't have any indirect evidence, we're out of luck: the past is already gone, and it's never coming back.

[Another thing I wanted to explore some more is a more minimal ontology that accounts for relativity \[better\] than eternalism. For instance, could we perhaps say that "now" is a cone rather than a sliver. Here "now" is just this instant, but as we get further away the range of now grows. One problem with that is that someone far away would have a different cone. Or perhaps there is an objective fact about what is "now" that no one inside the universe can know. I don't think that these alternatives are particularly good. But, I guess what I would like is to start from what we do know from science and develop a minimal set of what must be true and go from there. For instance, I am guessing that magnetic fields from a "future" time don't attract items from the past, even though magnetic fields from a "more left" place do. I don't feel like I have a strong enough grasp of the science and eternalism sounds kind of like a cop-out. —Miriam](#)

[ANSWER]

Eternalism

[I once read this paper for my physics class about time being the four dimension of spacetime, in which past, present, and future all exists, which I guess would be equal to Eternalism. Considering that there is a dimension in which all times exists \(past, present, and future\) then wouldn't that in a sense mean that whatever the future holds already exists and it's just waiting to happen? —Chelsea](#)

What you're describing is just the position that Ney calls eternalism. And there's no surprise that you were taught eternalism in a physics class. After all, as Ney points out on pp.143-144: the most powerful argument for eternalism seems to come from modern physics.

I think time's passage is relative; the existence of time zones is an example of this. But I also don't think that it makes it real for some people and unreal for others, it's just one whole that people experience differently (I think the existence of the WHOLE is a separate discussion) Is this what eternalism implies? I also feel like Ney interchangeably uses the words "non-existent/existent" with "relative/absolute" until she finally claims that "existence or reality is an objective matter" (144). I'm rather confused by the support she gives for this claim: "if e is out there to be believed in or not believed in, then it exists," but to "believe in" implies some sort of relativity? If Emily believes in e but Patrick doesn't, isn't it a relative experience? I guess it is objectively real but I feel like Ney is saying for something to be relative means to be nonexistent before leading up to this. —Ksenia

I think it's wrong to say that Ney uses "non-existent/existent" interchangeably with "relative/absolute". Something more subtle than that is happening in the argument for eternalism on p.144. One way to understand her point is that eternalism is the only ontology of time that does *not* collapse this distinction. If you believe in presentism or the growing/shrinking block theories, then the relativity of time forces you to be a relativist about existence as well: which things exist differs from person to person. But if you're an eternalist, then you don't have to say that. Since it seems absurd to conclude that ontology is relative to a person's perspective (i.e., that what exists for me depends on how fast I am moving relative to some arbitrary reference frame), this argument lends support to eternalism.

Is determinism a direct consequence of eternalism? Is there a version without the determinism, like one where all permutations of possible events are real, with multiple timelines and only one observed. —Shah

Ney answers this question (or at least begins to address it) in endnote 8, on p.168. Her point, I take it, is this: determinism is the claim that what happens in the future is fully determined by the laws of physics and the present state of the world. This could be false while eternalism is true. There could be facts about what will happen in the future—the things in the future could exist—without those facts being fully determined by the present state of the future and physical laws. Here's another way of making the point: imagine that there is a godlike supernatural being who can just observe the entire four-dimensional manifold of space-time as you or I could observe a block of cheese. The question about determinism then becomes: if this being has perfect knowledge of the laws of physics, can they use information about what is happening in one section of space-time to make perfectly accurate predictions about what is happening in another slice of space-time? Not necessarily!

Since the past and future are like abstractions, would a eternalist reject physicalism? —Shah

I don't think it is correct to say that the eternalist takes the past and future to be abstractions. They exist in the same (tenseless) sense that all of the things in the present exist. Indeed, our best reason for being eternalists comes directly from physics. So I don't think that there is any obvious tension between eternalism and physicalism.

I was thinking about the view of the 4-dimensional Minkowski space block for eternalism, and felt troubled about how it accounts for change in the future. For eternalists, it seems like every state is just static and exists as is, and sort of indirectly implies that everything in the past, present and future are all static in their existences within the block. —Cynthia

As Ney says on pp.150–152, this is one of the main objections to eternalism, originally due to McTaggart, who argued that B-theorists (all of whom are eternalists) can't explain the nature of change. I think that the eternalist has to respond by saying that since each of us exists within time, we experience change. The you that exists right now is really just one time-slice of an individual that is extended over time, and who experiences different events at different moments of its existence. This is what the experience of change really amounts to. (Of course, a lot of presentists argue that this doesn't really explain the nature of change. It is an ongoing debate.)

The Truthmaker Objection to Presentism

Regarding the truthmaker arguments and the presentists. I could imagine a different option for the presentists. They could say that for a statement about the past to be truth, there needs to have existed a truthmaker for that statement in the past. Similarly, for a statement about the future to be true, there will need to be a truthmaker for that sentence in the future. This seems like a smaller claim than the ones suggested in the text and I am wondering if people who require truthmakers would accept it. —Miriam

Your way of responding is obviously commonsensical, but it would require the presentist to say what it means to make past-tense existence statements. Specifically: what is the truthmaker for the claim, "there used to exist an X, but there no longer exists an X now". The eternalist/B-theorist can easily translate this into a tenseless statement, as "An X existed at a time before time t, but no X exists at time t" (where t is the time at which the original statement is made). But the presentist cannot do this, since they insist that the only things that exist are the things that presently exist. So to adopt this strategy, they would need some theory of what makes statements about past existence statements true that doesn't turn them into eternalists.

On pgs. 156-159, Ney discusses The Truthmaker Objection to Presentism and presentists' rebuttal to the truthmakers objections. I'm having trouble understanding why the example "Unicorns don't exist" is a good rebuttal to The Truthmaker Objection to Presentism, specifically why the non-existence of unicorns poses a problem to premise 1 of the theory on pg. 156. After all, unicorns don't exist now, don't exist in the future, or didn't exist in the past. Why can't the true statement: "Unicorns don't exist be enough to satisfy the premises of The Truthmaker Objection to Presentism argument. —Aanisah

The truthmaker objection depends on the following claim: in order for any statement to be true, some truthmaker must exist that makes it true. Ney's point is that "Unicorns don't exist" seems to be a counterexample to this claim, since there does not seem to be any existing truthmaker that makes "unicorns don't exist" true. What makes it true seems to be the absence of unicorns, not the existence of anything. So Ney's point is that since there seem to be at least some exceptions to the truthmaker principle, maybe presentists should say that statements about the past and future are exceptions too.

A Physics Question

I recall reading somewhere that there were some conflicts between QM and relativity, how does that factor into the discussion of time? —Shah

This question takes me out of my depth, as I am not a physics professor and so I don't know enough about the relationship between relativity and quantum mechanics to answer it adequately. If you are interested in seeing a physicist discuss some of the issues that are addressed in this chapter, I would recommend [this video](#) (←link) by the physicist, Sean Carroll (who is generally quite friendly to philosophy, unlike some physicists, and who often interviews philosophers on his (very good) podcast).

Time Travel

Time travel is fascinating to consider as a thought experiment. Logic seems to dictate what is and is not possible based on what theory of time one accepts, eternalism vs presentism mainly. I'm curious if this is an area of inquiry where philosophy can lead or if it requires more knowledge of physics to be intelligible. The main concepts of time build off of the understanding of special relativity. Does physics not have more to say about time travel? —Matt

I think that this is an area where philosophy and physics tend to blend together. Most of the philosophers who work on it are also well acquainted with the relevant physics, and most of the physicists who think about it tend to be philosophically inclined. A lot of philosophical topics are like this: you just have to know a lot about the relevant science in order to be able to work on them properly. (For example: my own research is mostly about language and communication, and I spend almost as much time reading and talking to linguists and psychologists as to philosophers. Likewise, philosophers of mind are now heavily involved in psychology and neuroscience, many epistemologists and philosophers of action work closely with economists, philosophers of math tend to hang out with mathematicians, philosophers of science usually have to know about the sciences that they use as case studies, and so on.)

If you'd like to see what a philosophically inclined physicist has to say about the paradoxes of time travel, check out [this video lecture](#) (←link) by Sean Carroll. As I said above, Carroll is a physicist who has a lot of respect for philosophers and who tends to think about philosophically interesting parts of physics. He is also very good at explaining things in a lucid way that doesn't require tons of physics background in order to get at least the gist of what he's saying.

On "The Present"

We are not able to grasp "I" of today and "I" of 17 days before as the same, and our cognizing or feeling "I" has been going to our memory storages every single moment. The way of thinking "I" is switching every moment. Moreover, our perceptions in dreams, via memories, imagination, introspection, and in the "actual" all seem to be phenomenologically the same. Likewise, yesterday seems closer to hundreds of years ago or fifty-seven years later rather than today, and only "now" seems floating. How are we able to perceive/grasp the present? Is there any function of the "present?" —Chateldon

"events that lie in the past or present than to those that have not yet happened (future events). Events in the present may be known because they are currently happening" (139). => I wonder if we can indeed perceive the "present." —Chateldon

How are we able to perceive/grasp the present? There are always gaps/differences/lags. Yet, I am not in favor of eternalism (I'm not in favor of eternalism). That is too bulky. —Chateldon

I think that what you're getting at here is independent of the metaphysical debate about presentism and eternalism, but it is still very interesting. It has to do with how we, biological creatures, experience time. In that sense, there really is a sense in which we construct the present, since our ability to determine which events happen before or after which other events breaks down at a small enough resolution.

Someone who has written some very interesting things on this topic is Daniel Dennett. You might want to look at his paper with Marcel Kinsbourne in *Behavioral and Brain Sciences*, "[Time and the Observer](#)" (←link), for example. (Dennett also discusses this stuff in chapter 5 of his book *Consciousness Explained*, which is an excellent book, and which might be an easier read than the paper.)