Saving General Presentism

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The presentist theory of time faces significant challenges from the theory of Special Relativity (SR), which suggests that reality may differ for observers in different inertial frames of reference (IFoRs). An IFoR can be simply defined as follows: objects in relative motion to one another occupy different IFoRs. Special Relativity is based on two fundamental postulates:

Postulate 1: The laws of physics are the same for all IFoRs.

Postulate 2: The speed of light is constant in all IFoRs.

These postulates lead to two well-known phenomena: time dilation and the relativity of simultaneity. To reconcile the relativity of simultaneity with the block universe theory, the eternalist philosopher Kristie Miller proposes subjective slicing of the block universe (Miller, 2023). In contrast, the presentist philosopher Nikk Effingham suggests the relativization of existence (Effingham, 2023), which means that each IFoR has its own private present.

In this essay, I defend presentism against the challenges posed by SR while rejecting Effingham's relativized present. I argue that SR does not inherently contradict presentism and that no reconciliation is necessary.

I will support my claim through the following arguments.

1. The relativization of existence contradicts the first postulate of SR, rendering it untenable.

2. Presentism is compatible with the non-uniform temporal passage across the universe suggested by time dilation.

3. No matter which IFoR you are in, some events in the universe are happening simultaneously for you.

4. In the relativity of simultaneity, no IFoR holds absolute status; thus, the conflicting claims of observers are equally unreliable. Consequently, there is no need to resolve their disagreements.

5. Observers in different IFoRs may disagree about the order of past events but not present events. Past observations do not undermine the objective simultaneity of present events.

6. The simultaneousity of past events is relative, while existence must be objective. Then, the past does not exist.

Through these arguments, I will demonstrate that presentism remains a viable theory despite the apparent challenges posed by SR.

While eternalism asserts that past, present, and future things all exist, presentism denies the existence of past and future, maintaining that only present things are real. Eternalists often caricature presentism as resembling a Newtonian view of the universe, where a universal clock ticks uniformly across all of reality, marking an objective present moment. I reject this oversimplified depiction of the presentist universe. The core claim of presentism—only present exists—has two key implications:

(1) Time passes.

(2) Some events in the universe occur simultaneously.

Although these implications may initially appear to align with a Newtonian framework, a deeper analysis reveals that they do not necessarily rely on Newtonian assumptions that conflict with the first consequence of SR: time dilation.

Time dilation refers to the phenomenon where time progresses at different rates for observers moving relative to one another. This effect is a direct consequence of the second postulate of SR, ensuring that the speed of light remains constant across all IFoRs. Einstein's light-clock[1] thought experiment illustrates this principle, showing how motion influences the rate at which time elapses.

[1]Einstein's light clock thought experiment illustrates time dilation by imagining a clock that measures time using a beam of light bouncing between two mirrors. When the clock is stationary, the light travels straight up and down. However, if the clock moves horizontally (relative to an outside observer), the light follows a longer diagonal path. Since the speed of light is constant, the longer path means the light takes more time to complete a tick. To the outside observer, time appears to slow down for the moving clock, demonstrating time dilation in special relativity.

From a dynamic perspective on existence, time dilation implies that the passage of time is non-uniform across the universe. We can conceptualize existence as the sum of independent causal processes and emergent random events. Different causal processes unfold independently and may progress at varying speeds. Moreover, a causal process may alter its rate of progression over time. Thus, time does not flow uniformly throughout the universe. However, within any causal sequence, effects must always follow their causes and cannot be observed in reverse order. Additionally, random processes—such as the spin of a particle—are independent of other events unless they produce causal effects themselves.

This conception of the universe aligns with implication (1) if presentism is understood to accommodate the non-uniform flow of time across the universe. Furthermore, it does not conflict with implication (2) because causally independent events can still occur simultaneously. Therefore, presentism remains compatible with time dilation.

When considering the simultaneity of present events, the assumptions of different ontological theories become blurred. Unless one adopts a nihilist position, it is reasonable to acknowledge that some events are occurring in the universe. If multiple events are happening, then these events must, by necessity, be simultaneous.

Eternalism is a distinctive position that denies the objectivity of simultaneous present events, yet its proponents are not nihilists. In fact, eternalism posits the existence of a broader range of entities beyond what presentism acknowledges. To claim the existence of both past, present and future, and reject implication (2) at the same time, Miller (2023) proposes a sophisticated metaphysical mechanism. Slicing the block universe relative to an observer's IFoR determines which events to be simultaneous for that observer. This mechanism allows eternalism to accommodate another consequence of SR: the relativity of simultaneity.

The relativity of simultaneity asserts that whether or not two events were simultaneous is relative to an IFoR. Consequently, observers in different IFoRs may observe two spacelike[2] separated events in different order. This can be illustrated by the following thought experiment. Consider two causally independent car crashes—one in Dublin and the other in Sydney.

[2]Causally dependent events are timelike separated events: they cannot be simultaneous. Causally independent events can be simultanous or timelike separated. If two events are simultaneous in one frame and occur at different locations, they are spacelike separated and causally independent.

An observer on Earth, Alice, observes the two crashes as occurring simultaneously. Meanwhile, Bob, who is on a plane speeding from Sydney to Dublin, observes the Dublin crash first and the Sydney crash afterwards. Despite witnessing the same events, Alice and Bob—being in different IFoRs—disagree about their temporal order.

I argue that the relativity of simultaneity does not conflict with the presentist implication (2). Regardless of their IFoR, some events are occurring simultaneously for each observer. By appealing to the first postulate of SR, if implication (2) holds for any IFoR, it can be regarded as a law of physics. Thus, presentism does not require the additional ontological assumptions of eternalism or the intricate slicing mechanism Miller proposes. Furthermore, there is no need for Effingham (2023)'s proposal to relativize existence to each IFoR, as this would contradict the first postulate of SR.

Even if one accepts implication (2), an objection may still arise in the form of the following proposition:

(3) For each observer in a different IFoR, a different set of events is simultaneously present. Therefore, present things are not objectively present, as presentism claims.

To evaluate whether proposition (3) can be deduced from the relativity of simultaneity, we must examine the nature of the disagreement. Notably, the relativity of simultaneity concerns the simultaneity of past events rather than present events. Returning to the thought experiment illustrates this point.

Alice determines the actual time of the two car crashes by accounting for the light travel time from Sydney and Dublin to her location. She concludes that both crashes occurred x seconds before she observed them. Bob, on the other hand, right at the moment he observes the Dublin crash, calculates light travel time to his location from Dublin as y seconds. After Δ seconds, when he observes the Sydney crash, he calculates light travel time to his location from Sydney as z seconds. Based on these calculations, Bob concludes that the first crash happened in Dublin $y + \Delta$ seconds ago, and the second crash happened in Sydney z seconds ago. Thus, Alice and Bob disagree about the order of causally disconnected **past** events, making the simultaneity of past events subjective rather than objective. However, the relativity of simultaneity does not extend this subjectivity to present events.

Presentism denies the existence of the past. This excludes the disagreement of past observations from the debate of the present. For a presentist, their disagreement is irrelevant to existence. Presentism allows disagreements

about the past because the past does not exist, but it does not permit disagreement about the present. Therefore, the relativity of simultaneity does not pose a contradiction to presentism. Effingham's proposal to relativize the present fails to address the actual objection posed by the relativity of simultaneity because, at best, the principle suggests the relativization of the past, not the present.

In ontological inquiries, it is reasonable to begin with the minimal set of metaphysical assumptions and expand them only when necessary. If nihilism is rejected, it is plausible to start from the assumption that "present things exist." From this foundation, one can end up denying the existence of past entities by appealing to the relativity of simultaneity and the first postulate of SR. If the past is relative and existence must be objective, then past entities do not exist.

One might critique my approach to disagreeing observers in different IFoRs—specifically, my presentist stance that disregards past observations—by arguing that it could lead to an epistemological crisis. Let us consider whether this concern is justified.

First, in practical terms, it is almost impossible for observers in different IFoRs to disagree about past events in real-world scenarios. To date, such disagreements have only occurred in thought experiments. Note that relativity of simultaneity is a consequence of the second postulate of SR, which is proven by time dilation experiments. On the other hand, relativity of simultaneity is derived through Einstein's thought experiments and mathematical reasoning. Demonstrating the relativity of simultaneity empirically would require one observer to record the simultaneity of two spacelike separated events and another observer, moving at a substantial fraction of the speed of light relative to the first, to record those same events in a different temporal order. Such conditions are extraordinarily difficult to achieve. This does not, of course, deny the relativity of simultaneity—its theoretical basis is well-established—but it does suggest that it is unlikely to provoke an epistemological crisis in the real world if left unresolved.

Second, it is important to note that disagreement between observers in different IFoRs only occurs regarding causally independent events. Typically, humans seek to establish the temporal order of events to identify causal relationships. However, in practice, the sequence of independent events is of little epistemological interest, as it lacks practical utility. Moreover, the order of causally connected events cannot be observed differently across IFoRs. If two observers disagree about the temporal order of events, this merely indicates

that the events are independent, rendering their sequence epistemologically insignificant.

One might still argue that, while such disagreements are unimportant to humans, they could be of interest to a hypothetical alien civilization with a peculiar fascination for the order of spacelike separated events. Suppose these aliens probe the universe from different IFoRs and discover a discrepancy about the temporal order of past events. Given Einstein's conclusion that both observations are equally right within their IFoRs, how could they resolve this disagreement?

Einstein's insight should not be interpreted as suggesting that both observers are correct in absolute sense. According to SR, no observer possesses an absolute IFoR. This lack of an absolute frame renders their past claims equally unreliable. Consequently, there is no genuine disagreement about the past that requires resolution. There is no need to introduce additional assumptions into our ontological theory to accommodate both observers, as neither holds the absolute IFoR.

It might still be expected that presentism, as an ontological theory, should account for why observers are right within their IFoRs even if their perceptions of the past are inaccurate. Without proposing such a mechanism, one might criticize presentism as being incomplete.

Consider a hypothetical universe-sized and immortal creature named Kod, who has countless eyes distributed across the cosmos, spread from the Big Bang. These eyes, moving through space with different velocities, collect data from their respective IFoRs. With his vast cognitive capacity, Kod integrates this data to form an absolute reference of events. From Kod's perspective, there would be no misconceptions about the past.

However, I am hesitant to introduce elaborate metaphysical constructs beyond the simple claim that "present things exist." I propose instead that we accept our misconceptions of the past as a game of light playing on us, mortals. An analogy may clarify this point: when I observe the sun, I see it as it was 8.3 minutes earlier due to the time it takes for light to travel from the sun to Earth. The universe does not need to preserve the sun's past states as physical entities for me to observe them; I merely see an image of the sun that light projects onto my eye. Similarly, when I see my reflection in a mirror, I do not infer the existence of another "me". In the same way, I deny that the sun's 8.3-minute-old version exists physically in the universe. I just assume that the sun exists presently, even if I do not have access to its presence.

Beyond the context of relativity of simultaneity, presentism also faces a broader critique: it is often claimed to be insufficient in accounting for past propositions. How can the proposition "there were dinosaurs" be true if dinosaurs no longer exist? I argue that the truth of past propositions, understood as abstract objects, does not necessitates physical existence of the entities they describe. Furthermore, I maintain that we may never possess objective certainty about what happened in the past. Such a view is previously put forward as hard presentism (Dawson, 2021): there are no past truths troubling truthmaking.

This raises a practical question: when faced with conflicting past propositions, which should we believe? Practical concerns often compel us to make judgments about the past, as seen in disciplines such as law, history, forensics, archaeology, journalism, and paleontology. These fields rely on present evidence to infer past events and employ rigorous analytical methodologies to adjudicate between competing narratives.

All these disciplines operate under the assumption that present evidence implies a set of true statements about the past. Among these, one proposition is favored through systematic evaluation. Our best epistemic strategy is to collect evidence and commit to the proposition that best explains the available data while making the fewest assumptions—a principle aligned with Occam's razor. For example, consider the proposition "the pyramids were built by aliens." Either this claim has no significant practical implications or there is insufficient evidence to support it. By contrast, the proposition "dinosaurs existed" is supported by extensive evidence collected through paleontological investigation and careful evaluation against its counter proposition.

In conclusion, presentism does not conflict with the consequences of SR. Moreover, as presentism entails fewer metaphysical assumptions than eternalism, it stands as a more ontologically parsimonious theory. Therefore, we should favor presentism over eternalism.

References

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