

The Ordinal Objection

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1 The Ordinal Objection

Tensed theorists employ an ontologically privileged moment, the present. The way in which the present is ontologically privileged varies across accounts. It could be the only time that exists, the moment the spotlight shines upon, the precipice of a growing block, or the pruning tool of a branching structure. Whatever it is, it can be *imagined* as moving along the *B*-series (the sequence of times ordered by the *earlier than* relation) at a rate of “1 second per second” or “1 second per hyper-second”. If a time is ordered by the *earlier than* relation, one would presume, that, no matter where it is on the timeline, it will eventually have its moment in the sun i.e. be present (if only for a moment). But there are possible *earlier than* relations for which this isn’t so. Here’s the argument.

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- (1) *Tense*: There is one and only one ontologically privileged time—the present.
- (2) *Fairness*: Every time, related by the *earlier than* relation, eventually becomes ontologically privileged.
- (3) There are possible *earlier than* relations for which there are times that can never become ontologically privileged.
 - (3a) Let the *earlier than* relation be isomorphic to the ordinal $\omega_1 + 1$
 - (3b) Then the time corresponding to the last member of $\omega_1 + 1$ (call it t_1) is inaccessible to the present and will never become ontologically privileged.
 - (3bi) Suppose t_1 can, and does, become present.
 - (3bii) Then either intervals of time become smaller over hyper-time, or the rate at which the present moves increases to a rate of uncountably many units of time per unit of hyper-time.

(3biii) Neither of these options seems plausible or independently motivated, so we should reject (3bi).

(4) Therefore, either Tense, Fairness, or both must be given up to allow for these possibilities.

Notice that the eternalist picture has no problem with any ordinal representing the *earlier than* relation because there's no moving present that must eventually light it up. t_1 is later than all the times corresponding to the members of $\omega_1 + 1$ and that's that. What happens at t_1 is equally real as any other time.

Objection: The tensed theorist doesn't need to accommodate all of these weird possible *earlier than* relations. We have good reason to think the timeline is not so strange. If the timeline did have jumps there would be no causal connection holding all times together. But time essentially involves causality.

Causality is commonly thought of as a relation that holds between two events where one is before and the other is after. And though, in the normal case, there are uncountably many events between any two events, the amount of time is still finite. If we select any event in ω_1^1 as the cause of an event in t_1 we will not only have uncountably many times between them, we will also have an uncountable *amount* of time between them. Thus these events cannot be causally connected.

It's a fair point and yet I have no trouble imagining a person time traveling across the gap. That's just a thought not a response. I don't really want to say that causality is essential to time. And I guess I have no problem saying that an event can have no cause at all (since maybe this is what happens with the big bang). Still I'm not sure how to respond here.

¹I'm obviously being loose here. By an 'event being in ω_1 ' what I really mean is that the event occurs at some time the index of which is represented by an ordinal in ω_1 .