

Re: Define a clock

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From: jem (*xxx_at_xxx.xxx*)

Date: 10/15/04

Date: Fri, 15 Oct 2004 09:36:08 -0400

AllYou! wrote:

> "jem" <xxx@xxx.xxx> wrote in message news:LD9bd.25587\$UA.23283@lakeread08...

>

>>AllYou! wrote:

>>

>>>"jem" <xxx@xxx.xxx> wrote in message

>

> news:nnQad.22908\$UA.19964@lakeread08...

>

>>>>AllYou! wrote:

>>>>

>>>>

>>>>

>>>>>"jem" <xxx@xxx.xxx> wrote in message

>>>>

>>>>news:y6xad.22452\$%x.19646@okepread04...

>>>>

>>>>

>>>>>>AllYou! wrote:

>>>>>

>>>>>>>"jem" <xxx@xxx.xxx> wrote in message

>>>>>>

>>>>>>>news:atR9d.21144\$UA.21034@lakeread08...

>>>>>>>

>>>>>>>

>>>>>>>>>AllYou! wrote:

>>>>>>>>

>>So basically "time" is just a substitute for "the relatively precise

>>position of the Earth relative to the sun as it moves" (since it's

>>easier to ask for).

>

>

> Not really. First of all, most people don't give any thought to whether or

> not **time** is real. All they care about is how an event relates to the

> present. Insofar as my assertion that time is not a real property of

> nature, there's a difference between the terms **time** and what **time** it is*.

> Just because they use the same word does not mean that they're in any way

> *the same.*

>

>

>>Well then, if "the relatively precise position of the Earth relative to
>>the sun as it moves" is something observable and real, and if "time" is
>>just a shorthand way of saying all that, doesn't that imply that "time"
>>is observable and real?

>

>

> *Not in the context in which you asked the question in the first place. If
> the word *time* were used in the same sense in which I gave my answer to you
> (i.e., simply as a substitute for a much less convenient to describe
> reality), then the answer to your question would be yes. Unfortunately,
> many people consider time to be a real property of nature and in that sense,
> the answer to your question is no.*

>

Right – "time" (like "distance") has different meanings in everyday language. When you're asked for the time, you're being asked for a particular measurement that's made by a measuring device called a clock, and in this sense "time" *is* a measurement made by a clock (analogous to "distance" *is* a measurement made by a ruler). Clearly then, this "time" is observable (as you've indicated above).

However, "time" is also used to represent the entity which clocks measure (analogous to space being the entity which rulers measure), and when "time" is used in this sense, you're suggesting it's unobservable.

>

>

>>>>Sure, there could be lots of motion internal to such a device, but
>>>>suppose the blinking light is emitted by a single point-like particle
>>>>that's relatively stationary to you the observer. In that case what
>>>>would you be observing?

>>>

>>>

>>>Relatively stationary?

>>

>>not moving relative to you

>>

>>

>>>You'll have to be more specific as to what you're
>>>hypothetical really entails. What is a single point particle? Does

>

> *this*

>

>>>particle have any size whatsoever? How does it blink? Does it emit

>

> *light?*

>

>>>Does the observability of time depend on these details?

>
>
> *I don't know how to answer that question because it's my contention that*
> *time is not observable. Therefore, the observability of time depends upon*
> *nothing.*
>
>
>> *Can't you*
>>*conceive of pulses of light emanating from a single location?*
>
>
> *Not without something at some level happening which would cause that light*
> *to be emitted. What you call details may very well be what supports my*
> *assertion. IOW, the blinking light is not magically emitted. Something is*
> *happening on some level, even if it's sub-sub-sub atomic, which entails*
> *motion of some type. To ignore this *detail* which is the basis of my*
> *assertion and then claim that it's not valid makes no sense.*
>
>
>>>*Does the light have a wavelength? Does that wave travel any distance?*
>>
>>*The light is what makes you aware that something has occurred at the*
>>*light source. It needn't be light of course, any signal would do.*
>
>
> *And any signal did not just magically appear. If it did, then time might in*
> *fact be real. But no event of any type is independent of motion except for*
> *those we imagine.*

So time isn't real because it's not possible to observe Nature except via the reception of some sort of signal?

OK instead of a blinking light, suppose you're listening to your watch ticking, what is it that you're observing? (i.e. not a description of the physical processes you think are causing you to hear the sound, but simply what is it that you're perceiving)?

>
>>>>*When the Big Bang occurred, among other fundamental properties of*
>
> *nature*
>
>>>>*which came into being at that instant or in the milliseconds afterward*
>>>
>>>*were*
>>>
>>>
>>>>*the weak and strong forces, gravity, mass, temperature, space, and*
>>>
>>>*velocity.*
>>>

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>>
>>>>*How about change in velocity, and change in change of velocity, and ...?*
>>>
>>>
>>>*How about it? What's your question?*
>>>
>>
>>*Well, shouldn't this infinite collection of motion descriptors be added*
>>*to the list of fundamental properties of nature?*
>
>
> *The changing value of a property is a property? We're getting into*
> *unnecessary semantics here but I'm willing to play if you want to explain*
> *your point.*

Well if change in velocity (for example) isn't a fundamental property of Nature, then presumably it can be derived from the fundamental properties you listed. Which ones?

>
>>>>>*And you should really use a different word to represent this fundamental*
>>>>>*aspect of motion that you've labeled "velocity", since that term already*
>>>>>*has a specific meaning as the rate of change of distance wrt (with*
>>>>>*respect to) time. Suppose we add an underscore to the start of the word*
>>>>>*that refers to the fundamental version.*
>>>>>
>>>>>*So tell me, how do you propose to measure _velocity?*
>>>>
>>>>
>>>>*As we do with all other fundamental properties of nature. How do we*
>
> *measure*
>
>>>*distance? We take a quantity of distance, give it a name (unit), and*
>>>*establish it as a standard by which all other distances will be*
>
> *compared.*
>
>>>*The same with velocity. Take a fixed quantity of it (as best we can)*
>
> *like*
>
>>>*the rotation of the Earth, assign a unit to it, and use it as the*
>
> *standard*
>
>>>*by which all other velocities will be compared.*
>>
>>*I suppose we could pick a location on Earth and take its _velocity*
>>*(relative to what?) as our standard, but how do I go about comparing*
>>*that _velocity to mine when I'm out jogging?*

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- >
- >
- > *The parenthetical question.....*relative to what*.....is a non-issue.*
- > *When you establish an inch as a unit of distance, the very definition of*
- > *establishing a unit is to establish a standard for comparison. It is that*
- > *to which other distances will be compared. The same is true of a velocity.*
- > *The whole reason why all of this misconception about *time* came to be is*
- > *that there is no convenient way to carry around a fixed quantity of velocity.*
- > *We can carry a unit of distance and a unit of mass, but doing so for time is*
- > *difficult. What's more, comparisons of different velocities is even more*
- > *difficult. But these difficulties only serve to further explain how our*
- > *dependence upon the concept of *time* came to be. It certainly does nothing*
- > *to advance the case that it's real.*
- >
- >

this one's in a separate thread now.

- >
- >
- >>>>*If something changes state or direction, doesn't that change have a*
- >>>>*beginning (i.e. a demarcation between not changing and changing)?*
- >>>
- >>>
- >>>*Yes it does, but an instantaneous change in direction of any mass would*
- >>>*require an infinite amount of energy and so none of these changes will*
- >
- > *be*
- >
- >>>*instantaneous.*
- >>
- >>*Of course that implies that circular motion (for example), where*
- >>*direction continuously changes, is impossible.*
- >
- >
- > *And had you put my response in context with your question as to change of*
- > *direction having a beginning, you'd see that circular motion was excluded*
- > *from the scope of both the question and answer.*

Why is that? Even circular motion has to have had a beginning.

Where did you get the idea that an "instantaneous" change in direction requires infinite energy?

- > *If these are nothing more*
- > *than trap questions, I'll pass.*

Why worry about being trapped – are you defending a position? I thought you were just trying to make sense of the "what is time issue". No?

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>
>>>> *For comparison, can you sketch a similar description of how "distance"*
>>>> *is measured?*
>>>
>>>
>>> *I did above.*
>>>
>>
>> *Yes, you did. You said, "How do we measure distance? We take a quantity*
>> *of distance, give it a name (unit), and establish it as a standard by*
>> *which all other distances will be compared."*
>>
>> *In common language the word "distance" is used in two different ways*
>> *that for purposes of this discussion we should distinguish between. It*
>> *can refer either to the separation between 2 objects/locations, or to*
>> *the measurement (i.e. quantification) of the separation between them.*
>> *Can we agree to use "distance" only to mean the latter (i.e. the*
>> *measurement)? Do you view "distance" in this sense as real and*
>
> *observable?*
>
> *Sure.*
>
>
>> *Apart from the semantics issue, I agree with you on the process of*
>> *comparison by which distance is determined.*
>>
>> *Suppose we want to determine the distance between 2 objects. Well,*
>> *since the separation between those objects can change, the distance*
>> *between them can differ depending on the details of the measurement*
>> *process (e.g. if I start counting the number of meter sticks that fit*
>> *between them today and complete the process tomorrow I could get a*
>> *different result than if I complete the process today – see where this*
>> *is going?).*
>
>
> *But I fail to see the point of it all as it relates to the specific question*
> *at hand. Such is the problem with parsing posts down to their most*
> *fundamental elements. The point here is that with length (distance, or*
> *whatever other semantic you wish to apply to the concept we're discussing),*
> *we take a quantity of it and use that to compare to all others in order to*
> *understand and communicate. We can do the same with velocity, albeit with*
> *greater difficulty, but this cannot be done with *time* because there is no*
> *unit of time to be used in this way. All we know of time is a velocity*
> *through a distance.*
>
> *Other than that, I fail to see the point of the treatise on the semantics of*
> *the term *distance* as it applies to this dialog.>*

The point was to avoid the confusion that comes from using the same word to mean two different things. It may seem overdone in the case of

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"distance", but the analogy is useful when discussing the dual meaning of "time".

>

>>*Do we need to bring "time" into this distance determination?*

>

>

> *As you've constructed the hypothetical, it has nothing to do with measuring a fixed distance in a given FOR.*

Do you suppose that everything you want to measure is going to accomodate you by ceasing its activity while you measure it?

> *However, to the extent that you wish to*

> *pursue this issue for other, unrelated purposes, you could complete this*

> *process just fine if you had a given, fixed standard by which to compare the*

> *motion you've described and made your adjustments accordingly. In effect,*

> *that's exactly what you're doing anyway when you say you use *time*.*

>

Addressed in separate thread.