Re: Circular motion in SR

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- *From*: rbwinn <rbwinn3@xxxxxxxx>
- *Date*: Mon, 24 Mar 2008 05:20:54 −0700 (PDT)

On Mar 23, 10:53 am, PD <TheDraperFam...@xxxxxxxxx> wrote:

> On Mar 22, 10:50 am, rbwinn <rbwi...@xxxxxxxx> wrote:
>
> > On Mar 22, 7:27ýam, PD <TheDraperFam...@xxxxxxxxx> wrote:
>
> > > But the rotation of the sun is
> > > not the standard. The
> > > standard is
> > > defined in terms of
> > > reproducible physical
> > > processes that can be
> > > replicated locally.
>
> > Well, The Galilean transformation equations
> > can be referenced to the
> > rotation of the sun, but not to reproducible
> > physical processes
> > replicated locally.
>
> By choosing some distant reference, one can *always*
> impose an
> absolute time, sacrificing all locally consistent behavior.
> That,
> however, is not an obviously superior position. It leaves you
> with the
> situation that, in terms of rotations of the sun, an observer at
> rest
> can measure radioactive half−lives, the growth of trees, the
> population of bacteria, an AC−circuit resonance period; but
> as soon as
> you go to a frame in which the sun is moving, then you need

> to *first*
> redefine seconds to be in terms of that distant sun's rotation, and
> then after doing so you note that all your local radioactive half−
> lives, the growth of the trees, the population of bacteria, and the AC−
> circuit resonance period have all changed in terms of the new second.
> Seems rather stupid, just to preserve the rotation rate of the distant
> sun and to preserve a Galilean transformation.

> If you make this change just to preserve the Galilean transformation,
> and as a result you find that all local physical phenomena now have
> different rates, then this *normally* would be an indication that the
> Galilean transformation is not a good one to insist on. And in fact,
> the Galilean transformation was thought to have value when it was
> believed that you would not *have to* do the goofy redefinition of the
> second you propose. When it was found out that you'd have to, most
> reasonable people began to look for a better transformation than the
> Galilean one. You on the other hand, want to preserve the Galilean
> transformation, even though it would mean that all local physical
> processes would now have different rates. Why you think that's better
> is beyond me.

> > I think that local physical processes having different rates is
> > reality,

> But there is no evidence for it. Note that all the local physical
> processes would have to have their local rates affected by *exactly*
> the same amount, even though they are completely different processes.

Well, something you do not seem to have considered is that what you

are calling the speed of light is the rate at which the elements react with each other at a certain place and time.

> and if they are affected by velocity,

> They are NOT affected by velocity. I already tried to address this with you. The differential aging of the twins does NOT have to do with the speed of one of the twins.

Well, you try to claim the twin is going through some kind of time warp or something. I think the twins are the same age, whatever one twin might have been put through by science because they were born at the same time.

> I believe that there
> may be other factors which also affect local physical processes. What I cannot understand is the position of scientists. Scientific time is the only measurement of time allowed. OK, so what about your twin theory? How do they ever get back together according to scientific time?
> If they do, then obviously, there is some measurement of time that includes the separation of the twins and their reuniting, which could be calculated in either frame of reference.

> No, sir. There is only frame−dependent time. There is no single time measurement that both both twins would agree on. (You also mention "either frame of reference" as though there were two. There are not two. There are at least three.

Right. If you can't answer something, try to make it more complicated. Really there are at least 7,238. You say there is only frame−dependent time, but anyone can determine for themselves that the same event can be observed from two different frames of reference and used to measure time in both frames of reference, just as the Galilean transformation equations show.

> So, as the Galilean
> transformation equations show, there is not a different number of separatings and reunitings in one frame of reference as compared to the other.

> OK

> > And the twin does not leave and return in one frame of
> > reference and then wait until he finishes returning in the other.
>
> OK
>
> > If
> > time is measured by separatings and reunitings in each frame of
> > reference,
>
> But it's not.

OK, so you refuse to consider the separating and reuniting of the twins. That does not mean it does not happen.

It's measured according to the number of seconds

> elapsed, and the number of seconds elapsed is determined by a standard second that is defined in terms of local physical standard, and against which it is verified that all physical processes behave the same in every inertial reference frame. (That is, trees grow in the same way, thorium samples decay in the same way, bacteria multiply at the same rate, hair grays at the same rate, etc.) And by those standards, the interval of time between the separating and reuniting of the twins is *different* between the two twins.

Well, if we are not allowed to count time any other way, I guess a lot of people are going to be criminals by your standard. There are still people who count days by the rising and setting of the sun.

> > then t'=t, just as the Galilean transformation equations
> > show. The difference in clock rates will not affect how many times
> > the twin leaves and returns. But you would have to decide which clock
> > has the more meaningful time in describing what took place.
>
> No, you don't. You don't have to say, "Well, we have to choose one to be more correct and the other less correct." Likewise, when I tell you that your speed right now is either zero or 850 mph, depending on whether you are looking at a frame tied to the earth or one that isn't rotating with the earth, there is no need to say one is more "right" than the other. Your speed is simply a frame−dependent quantity, as is your kinetic energy, as is your momentum, and is a whole host of other completely useful and completely frame−dependent physical quantities.

I did not say one was more correct than the other, I said one was more meaningful than the other. If you want to measure everything by transitions of a cesium atom, it seems to me that you are free to do it. Just don't try to tell me that you are more intelligent than everyone else because that is what you decided to do.

Robert B. Winn
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