Re: The Real TWINS Paradox − the Simplest Version

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- *From*: Phil <toob−headman@xxxxxxxxxxxxx>
- *Date*: Tue, 23 Oct 2007 05:53:13 GMT

RP wrote:

> On Oct 19, 12:03 pm, Phil <toob−head...@xxxxxxxxxxxxx> wrote:
>
> > Sue... wrote:
> >
> > Well, this time I am mostly impressed! You still referred to "other references," instead of reasoning it out for yourself, but I was fairly harsh, and you responded with pure class ... the Sue I am used to seeing!
> >
> > Thanks,
> > Phil
> >
> > P.S. The universe does allow an experiment to "reveal" to us that information about our "absolute velocity" which we could simply deduce on our own, PRIOR to running the experiment. If we KNOW, prior to running an experiment, that the experiment's velocity will include a change of 0.6c relative to inertial observer C, as seen by inertial observer C, then it would actually be amazing if the results of that experiment were NOT consistent with a change of 0.6c, such as an elapsed time of 0.8 relative to any inertial observer.
> >
> > Similarly, simple geometry PROVES that if observer A goes on a round trip with a constant velocity of 0.6c relative to inertial observer C (the clock paradox), then A's AVERAGE absolute velocity is also at least 0.6c, meaning that A's clocks should show an elapsed time of 0.8 relative to C. However, we cannot deduce, prior to the experiment, anything about C's absolute velocity of 0.6c, so unless the principle of relativity is false, then as seen by C, A must ALWAYS end up with an elapsed time of exactly 0.8, regardless of C's absolute velocity, and that is in fact the case. Remember, relativity does not disprove absolute velocity; the conclusion has been that absolute velocity should be eliminated from physics because it is irrelevant, not because relativity has somehow proven that absolute velocity doesn't exist. Alen's exercise is an indication that this largely PHILOSOPHICAL conclusion may not be completely justified, even though the exercise in

> no way contradicts the LAWS of SR.

> It is because observer C cannot determine that he is in motion that
> there is no absolute reference.

Well, let's define "absolute reference." If you mean, we cannot use changes in experimental results to determine our velocity relative to the medium of space, then yes, there is no absolute refeernce. If, on the other hand, we can PROVE that some physical law, such as the "time−rate" of objects, is in fact a function of absolute velocity, then there are absolute references. Note that our inability to USE this absolute reference to measure our absolute velocity does NOT invalidate a provable conclusion, any more than not being able to find a living dinosaur invalidates the various proofs that they once existed. Now, the "proof" has to be valid and significant, but IF that can be done, then we know that some laws of nature ar in fact "absolute laws," i.e., are functions of absolute velocity. There is a bit of philosophy here, but again, no one has SEEN the nucleus of an atom; we use facts that CAN be seen, and use rules of logical reasoning, to PROVE that most of the mass of an atom exists in a small region that Rutherford called "the nucleus." To claim that "I can't measure absolute velocity, therefore there are no absolute laws," is faulty reasoning, and in fact, if you read the old arguments carefully, Einstein and others said that there is no NEED to state that there are absolute laws, not that they do not exist! Arguments like Alen's at least seem to indicate that there may be more of a need than we care to admit. For myself, the fact that it is so easy to PROVE that some laws are in fact functions of absolute velocity is the deciding factor.

If the ticking rate offset is a

> function of absolute velocity, then your argument would fail
> instantly.

You've lost me here completely.

It is because the ticking rate of the moving clock is

> reduced independently of it's direction of motion wrt C that there is
> no absolute reference.

Let's see if I can follow you here.

Suppose C is moving "absolutely" at .5c wrt the

> absolute reference frame, and that A is moving at 0m/s wrt the
> absolute reference frame.

Okay.

Direction wrt C would produce different

> effects on A if there were an absolute frame.

As seen by an absolute observer, yes, but not as seen by C. Specifically, the absolute laws do affect the processes of C's observations and experiments in ways that do vary as a function of C's absolute velocity, but those effects ALWAYS "cancel each other out," leaving the RESULTS of C's observations and experiments unaffected by C's absolute velocity. However, C can easily see the effect of the absolute laws by, for example, noting how a CHANGE in his own absolute velocity causes his clocks to lose synchronization. Mind you, the "clock error" will be unaffected by C's initial absolute velocity, and therefore cannot be used to measure C's absolute velocity. However, if C's absolute velocity and NOTHING ELSE WHATSOEVER changes, meaning the clocks are "frozen" during the change in velocity, then if there were no absolute laws, then C's clocks could not possibly lose synchronization. A non−existent cause cannot possibly produce a real result, so if a real result occurs, something just as real HAD to cause it. If the ONLY available factor is a CHANGE in absolute velocity, then that change MUST have been the cause.

It is because the

> ticking rate offset is a function of velocity wrt the reference frame
> of C, regardless of the frame that C finds itself at rest in, that
> there is no absolute reference frame.

Again, no, as seen by C, the time−rate is relative to C, which means C cannot MEASURE his absolute velocity, but, also again, the fact that you cannot SEE a dinosaur or nucleus does not mean that they do not exist. It merely means that EITHER they don't exist, or there is some barrier that prevents you from seeing them. In the case of the absolute laws, we can restate the principle of relativity as, "All events contain either no absolute laws, ot TWO OR MORE absolute laws, and the INITIAL effect that these laws have on an experiment's results always cancel out." Note that any SUBSEQUENT changes in absolute velocity OFTEN have very visible effects on experiments, such as time−dilation, or changes in clock synchronization. These effects occur because some aspects of our universe are indeed functions of absolute velocity. It is imperative to DISTINGUISH between the existence of absolute laws, and the ability to use those laws to measure absolute velocity. The changes in the synchronization of our clocks that DO OCCUR when our absolute velocity and nothing else whatsoever changes COULD NOT EXIST if there were no absolute laws, therefore, absolute laws do exist. But then, do you really believe that light does NOT travel at a constant velocity, c, relative to space? The fact that we cannot USE those laws to measure our absolute velocity means that you CANNOT DESIGN an experiment that uses, or focuses on, just one absolute law. Every experiment, every EVENT, incorporates two or more absolute laws (or none at all). Go ahead, try to design an experiment that examines just one absolute law! Outside of my "around the universe" experiment, it is absolutely impossible, at least to my knowledge. Absolute laws include:

(1) Light travels at a constant velocity, c, relative to space.

(2) An object's time−rate is a function of absolute velocity.

(3) An object's mass is a function of absolute velocity.

(4) An object's length is a function of absolute velocity.

(5) Acceleration, as measured by force, is relative to space.

The last absolute law is a function of absolute acceleration, not absolute velocity, but technically speaking, it is also an "absolute" law, in that it is relative to the universe as a whole, rather than to some particular non−universal object.

> Here's a very simple gedanken that will prove Lorentz's notion of a physical contraction of measuring sticks is contradictory to the lorentz transform.

???

In this thought experiment we have 3 identical

> poles arranged in free space in this manner.
>
> |____________ ___________
> |
> | _____________
>
> The system is at rest wrt K but moving at v to the right along x wrt K'. According to the transorm these poles will be length contracted wrt K'.

Yes.

If the space between the top two poles isn't contracted in

> addition to the contraction of the poles,

It isn't.

then either the total length

> of the assemembly would have to be contracted by the lorentz factor,

Yes.

> thus including the space between the top two poles,

Actually, the space between the poles isn't moving, and remains unaffected.

or there will be a

> displacement along x between the end points of the top poles and the bottom pole.

???

However, if we connect the three poles with beams at

> right angles, like this
>
> |____________ ___________
> | | |
> | |_____________|
>
> then it is now a single object whose total length contracts, and thus the space between the two top poles along with it.

Well, the empty space, the MEASURED space, contracts.

No physical forces

> are applied to the top two poles to bring them closer together because nothing has changed whatsover except our frame of reference, the latter of which cannot provide for physical forces that weren't already present wrt other inertial frames. To illustrate this point a bit better, suppose that the poles are telescopic and have an internal mechanism to extend or contract them. if two such poles (like the top two poles above) contract while in motion or at rest then the space between them will increase unless the two are bound in some way, in which case forces would be required to accelerate the poles toward each other as they contracted in length.

You've lost me here. Maybe you can be more specific about which observer a particular observation is relative to?

> Since there is no such mechanism provide by a simple change in our perspective, then it follows that the lorentz transform requires a contraction of space wrt the moving observer rather than a contraction of the objects located in it per se. This is in fact what the lorentz transform is designed specifically to do, and one can only wonder what lorentz was thinking. There is absolutely no connection between the lorentz transform and his idea of forces acting to physically contract objects. They are mutually exclusive theories. That is why Einstein recieved credit.

You've lost me completely, but Lorentz was absolutely brilliant, and Einstein thought so as well.

Phil

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