Re: SR cannot determine Contraction

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- *From*: Dono <sa_ge@xxxxxxxxxxx>

- *Date*: Tue, 26 Feb 2008 21:23:18 −0800 (PST)

On Feb 26, 8:06 pm, Tom Roberts <tjroberts...@xxxxxxxxxxxxx> wrote:

> Dono wrote:
>
> > On Feb 25, 9:47 pm, Tom Roberts <tjroberts...@xxxxxxxxxxxxx> wrote:
> >
> > > The "pole and barn" gedanken is valid. [...]
> >
> > This is not what I asked you. What I asked is can the pole fit in the
> > barn with both doors closed simultaneously in the barn frame?
>
> With the parameters I gave, or with the parameters you gave, yes.
>
> > In other words, do you , Tom Roberts, believe that uniform relative
> > motion makes objects shorter?
>
> That's your confusion. This is phrased so poorly that no answer is
> possible. Your phrase "makes objects shorter" implies a change to the
> object, but observations made from another frame cannot possibly affect
> the object itself.

Correct. But this is exactly what the paradox states, that , from the barn frame, the pole becomes magically shorter, by virtue of relative motion. All this, while the contraction is "stressless". To make things even more interesting, if the measurement methodology is switched to marking the pole endpoints simultaneously in the pole frame, this results into length dilation. The whole point is the interpretation of length contraction: real vs. imaginary. You seem to believe it is real, Michael Janssen points the other way.

> Uniform motion makes objects be measured to be shorter than when they
> are at rest.

Correction:
Depending_on_the_measurement_technique_uniform_motion_MAY_return_shorter_or_LONGER_length_for_the _measured_object.
The "model" predicts shorter, which is correct. But you don't know if the object becomes shorter because there is no experimental confirmation. In order to become shorter you's have to ascribe to the theory that the "atoms_are_becoming_shorter" or that "the_interatomic_spaces_are_becoming_shorter". All this without any increased internal stress.

> And if the "measurement apparatus" includes doors that close simultaneously in their frame, then for appropriate values of the parameters a moving object can fit between closed doors that are closer together (in their rest frame) than the proper length of the object −− at least in principle.

"At_least_in_principle". No one has seen it in practice. Because it comes with the "stressless contraction", a phenomenon never observed and never explained theoretically.

> Remember how the length of a moving object is measured: its front and rear locations are marked SIMULTANEOUSLY in the measuring frame,

Yes, I know that very well. Problem is, if you mark the ends of the object in the object's frame you get length...dilation. Kind of disturbing, wouldn't you agree?

> then the distance between the marks is measured with rulers at rest in the measuring frame. But the order can be reversed: one can pre−position doors an appropriate distance apart, and "mark" the ends of the object by opening/closing them. See my description of the gedanken without accelerations, and my solution to the problem you posed.

Yes, I saw it. What if the effect is not the "physical" contraction? What if the effect were indeed "just a trigometric one" (http://en.wikipedia.org/wiki/Length_contraction#A_trigonometric_effect.3F). After all, the "physical" length contraction has escaped detection for more than 100 years. Projection on the other hand, is much easier justifiable.

> As I have said before, IMHO the pole and barn gedanken is best understood as displaying the relativity of simultaneity, rather than length contraction.
>
> Tom Roberts

We agree on this. The problem still stands: is length contraction a physical or a geometric effect? You seem to believe that it can magically shrink the 50 foot pole to fit inside the 30 foot barn. I have serious doubts about it. Unfortunately the only way to decide is via experiment, one that it is not readily achievable.

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