

Re: Are SR effects real or not? Simplified case.

Source: <http://sci.tech-archive.net/Archive/sci.physics.relativity/2008-07/msg01337.html>

- *From:* Uncle Ben <ben@xxxxxxxxxxxx>
 - *Date:* Tue, 15 Jul 2008 00:22:48 -0700 (PDT)
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On Jul 14, 11:56 pm, Tom Roberts <tjroberts...@xxxxxxxxxxxx> wrote:

Uncle Ben wrote:

Does the string break or not? Is the Lorentz–Fitzgerad contraction real or not real?

You must state this more precisely, and must separate the questions, as the answers are not the same.

SR unambiguously predicts that the string will break. There is no doubt about this prediction. And there is no doubt about the validity of SR within its domain, in the world we inhabit (the only doubters do not understand SR or modern physics).

But whether or not this L–F contraction is "real" or not depends ONLY on the meanings of words. I would not attempt to use the word "real" in this context without a precise definition.

Here's an analogy between a ladder and a doorway, and length contraction in SR:

Ladder and doorway:

Consider a long ladder and a narrow doorway. In some orientations the ladder will fit through the doorway, and in some orientations it will not. The orientation does not affect THE LADDER, but it does affect the RELATIONSHIP between ladder and doorway.

Length contraction in SR:

In SR, the velocity of an object does not affect THE OBJECT, but it does affect the RELATIONSHIP between the object and a measurement of its length. This is so because in SR, relative velocity is merely a different ORIENTATION (in 4–d spacetime) between the object and the inertial frame used for the measurement.

Ladder and doorway:

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So if "real" means "affects the ladder" then this is not "real". But if "real" means "the ladder actually fits through the doorway" then it is "real".

Length contraction in Sr:

So if "real" means "length contraction affects the object" then this is not "real". But if "real" means "affects the measured value" then it is "real".

At 6:00 PM my time Monday, July 14 we have a vote of [...]

"voting" does not matter. This is not a matter of opinion. SR makes clear and unambiguous predictions for all of this, and the validity of SR within its domain is also clear and unambiguous (except to people who do not understand SR). The only dissent is from people who do not understand SR. <shrug>

Tom Roberts

Tom, without getting too deeply philosophical, I say that the LFC is real in that it is not an illusion. Moving rulers get shorter — they don't just appear to get shorter; they are shorter w.r.t. the frame of reference in which they are moving. They are not shorter w.r.t. their rest frame. There is no contradiction. Length is relative; doubters, get over it.

About the poll: This is exactly what Bell did at CERN, (with the result that a large majority said no.) The interest is not in deciding the truth; it is in how many really understand relativity.
Ben

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