

# Re: SR cannot determine Contraction

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- *From:* Dono <sa\_ge@xxxxxxxxxxxx>
  - *Date:* Fri, 29 Feb 2008 10:45:14 -0800 (PST)
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On Feb 29, 10:22 am, PD <TheDraperFam...@xxxxxxxxxx> wrote:

On Feb 29, 11:40 am, Dono <sa...@xxxxxxxxxxxx> wrote:

On Feb 29, 8:38 am, Tom Roberts <tjroberts...@xxxxxxxxxxxxxxxx> wrote:

Dono wrote:

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

Dono wrote:

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

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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.

You insist on using loaded words. This is not "magic", this is GEOMETRICAL PROJECTION. When you approach a doorway with a ladder, in some orientations the ladder fits through, and in other orientations it doesn't. THIS IS THE SAME PHENOMENON, but it occurs in the X-T plane, not the X-Y plane like the ladder's rotation. Relative velocity is a (hyperbolic) ROTATION in the X-T plane.

Actually the analogy would be better if one considered moving the doorway around the ladder, leaving the ladder fixed. But common experience does not include either moving doorways or poles moving at 0.8 c.

All this, while the contraction is "stressless".

Of course there is no stress -- what stress is induced in the ladder when you rotate it? Or rather, when you look at it from another angle?

Then you are stuck with answering the following:

Would you care to show how?

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–while in the proper frame  $S_0$  :  $\Sigma(F_{\text{internal}}) = 0$

–in a frame moving with  $v$  wrt  $S_0$   $\Sigma(F'_{\text{internal}})=0$  (where  $F'_i$  is the Lorentz transformation of  $F_i$ ) and that , somehow, magically, the atom sizes or the lattice spaces between atoms have Lorentz contracted. I think Lorentz spent a good 10 years of his life trying to prove that and it amounted to nothing.

It's not that complicated. One \*measures\* the rod to be of shorter length. One \*measures\* the rod to have no fewer atoms strung end–to–end — or at least finds no evidence of some atoms being ejected from the length.

I never said that, so please abstain from constructing strawman. Be a little more respectful and less condescending.

One \*measures\* that there is no stress in the rod — or at least finds that there is no evidence of any stress.

How? I asked you to calculate and you are responding with prose:

Would you care to show how?

–while in the proper frame  $S_0$  :  $\Sigma(F_{\text{internal}}) = 0$

–in a frame moving with  $v$  wrt  $S_0$   $\Sigma(F'_{\text{internal}})=0$  (where  $F'_i$  is the Lorentz transformation of  $F_i$ ) and , YET the atom sizes or the lattice spaces between atoms have Lorentz contracted. I think Lorentz spent a good 10 years of his life trying to prove that and it amounted to nothing.

I know that you can calculate very well, so , I'd appreciate some math

One therefore concludes that the interatomic spacing has also contracted.

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Please show some calculations.  
Would you care to show how?

–while in the proper frame  $S_0$  :  $\Sigma(F_{\text{internal}}) = 0$

–in a frame moving with  $v$  wrt  $S_0$   $\Sigma(F'_{\text{internal}}) = 0$  (where  $F'_i$  is the Lorentz transformation of  $F_i$ ) and that , somehow, magically, the atom sizes or the lattice spaces between atoms have Lorentz contracted. I think Lorentz spent a good 10 years of his life trying to prove that and it amounted to nothing.

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Then one slaps oneself on the forehead when it occurs that there is no reason why an atom should be any more inherently absolute in dimensions than a rod and somehow resist the effect of contraction.

You are being condescending again. You have no proof of the above (neither theoretical nor experimental)  
Besides, some published authors will sharply disagree with you.

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.

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Stop using such loaded and ambiguous words — they merely confuse you and your reader: "real" means many different things to many different people. Discuss MEASUREMENTS, not what someone happens to think is "real". There is no doubt that MEASURING the length of a moving pole will obtain a value smaller than its proper length. And if your measurement includes rapidly opening and closing doors, the pole can fit inside a barn that is shorter than the pole's proper length.  
<shrug>

All right , let's make it even less ambiguous, look here:

[http://en.wikipedia.org/wiki/Length\\_contraction#A\\_trigonometric\\_effec...](http://en.wikipedia.org/wiki/Length_contraction#A_trigonometric_effec...)

What in the Roberto Torretti statement " Relative motion will not make a solid body shorter in the way that, say, heat makes it larger." don't you understand, Tom?

That's right, it isn't the same process. The shortening of the rod should in no way be confused with what happens when a rod is cooled.

So what part in what I have been telling you: " Relative motion will not make a solid body shorter in the way that, say, heat makes it larger."

don't you understand, Paul? I have been telling you the same exact thing.

And that is a \*measurable\* result. The answer that observers in \*all\* frames will agree is that, no, the barn doors will not clip the rod. Different observers will have different accounting for \*why\* that is the case, but they will all agree on that.

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Not if "Relative motion will not make a solid body shorter", so you are still short of a valid explanation in the barn frame.