

Re: The true crackpots

Source: <http://sci.tech-archive.net/Archive/sci.physics.relativity/2005-10/msg00547.html>

- *From:* "PD" <TheDraperFamily@xxxxxxxx>
 - *Date:* 10 Oct 2005 06:41:31 -0700
-

mluttgens@xxxxxxxx wrote:

> PD wrote:

>> kenseto wrote:

>>> "PD" <TheDraperFamily@xxxxxxxx> wrote in message

>>> news:1128718724.713401.183220@xx

>>>>

>>>> kenseto wrote:

>>>>> "PD" <TheDraperFamily@xxxxxxxx> wrote in message

>>>>> news:1128626695.040370.318360@xx

>>>>>>

>>>>>> mluttgens@xxxxxxxx wrote:

>>>>>>> I presume that you recognize that the Fermilab experiments couldn't

>>>>>>> prove "length contraction". Indeed,

>>>>>>>>

>>>>>>>> "In a tevatron, those collisions occur of course head-on.

>>>>>>>> Or, according to SR, physical bodies set in motion only shorten in

>>>> the

>>>>>>>> direction of their motion, meaning that a proton colliding head-on

>>>>>>>> with an anti-proton will not observe "length contraction" of the

>>>>>>>> anti-proton."

>>>>>>>>>

>>>>>>>>> Now you are referring to HERA papers. Please give me a *specific*

>>>>>>>>> reference where such contraction has been demonstrated. I am pretty

>>>>>>>>> well convinced that there are none, unless in your imagination, like

>>>>>>>>> with Fermilab :-)

>>>>>>>>>>

>>>>>>>>>> Marcel Luttgens

>>>>>>>>>>>

>>>>>>>>>>> What I'm doing is comparing jet cross sections in two environments:

>>>>> one

>>>>>>>>>>> where the source is stationary in the lab (Tevatron) and one where the

>>>>>>>>>>> source is moving in the lab (HERA). I don't think you're getting that

>>>>>>>>>>>> point.

>>>>>>>>>>>>

>>>>>>>>>>>>> Let me see if I can find something that is a little more direct for

>>>>>>>>>>>>> your tastes. Since this will be a bit older in the literature, I'll

>>>>>>>>>>>>> have to search a little harder.

>>>>>>>>>>>>>>

Re: The true crackpots

>>>>> At least you are willing to read in the library, which is commendable
>>>>> and more than what folks like TomGee or Seto are either willing or
>>> able
>>>>> to do.
>>>>>
>>>>> ROTFLOL....You don't even understand what length contraction means in
>>> SR. In
>>>>> SR the length contraction is not physical. It is an apparent geometric
>>>>> effect. It is the geometric projection of the moving rod onto the
>>> observer's
>>>>> frame.
>>>>>
>>>>> That's right. Because length itself is a projection of the interval
>>>>> between two spacetime events onto the observer's frame. It is therefore
>>>>> natural that two different observers will see two different lengths.
>>>>> But SR also says there is no deeper or hidden meaning to length.
>>>>>
>>>>> So you agree that in SR length contraction is not physical.....right??
>>>>>
>>>>> In SR, length is not an intrinsic physical property. It is the result
>>>>> of a measurement procedure, which intrinsically produces results that
>>>>> depend on the motion of the observer.
>>>>>
>>>>>
>>>>>> From the moving rod point of view the space in the direction of
>>>>>> motion is contracted but the physical length of the rod remains the
>>>>>> same.
>>>>>> BTW your bogus premise of physical rod contraction has the following
>>>>>> problem:
>>>>>> 1. Two identical rods A and B and B accelerated away and becomes initial
>>>>>> again.
>>>>>> 2. A sees B is physically contracted during B journey.
>>>>>> 3. B turns around and rejoins A. B's physical rod length returns to the
>>>>>> same
>>>>>> length as A.
>>>>>> 4. That means that during the return trip B's physical length is
>>>>>> physically
>>>>>> expanded.
>>>>>> 5. That means that we will have both physical length contraction and
>>>>>> expansion. Questions: How is B know when to physically contract and when
>>>>>> to
>>>>>> physically expand??
>>>>>>
>>>>>>
>>>>>> You are assuming that length is a true physical property and not the
>>>>>> result of the projection of two spacetime events projected onto the
>>>>>> observer's frame.
>>>>>>
>>>>>> It was you who said that length contraction is physical and you said that
>>>>>> many experiments have been performed to confirm this assertion.
>>>>>>
>>>>>>

Re: The true crackpots

>> There have been many experiments that have verified that length, by any
>> reasonable definition of the same, depends on the motion of the
>> observer. This does NOT mean that length contraction is a physical
>> process, nor does it mean that length is an intrinsic physical property
>> of an object.
>>
>>>
>>>> Assuming that is what would force the mental picture
>>>> of something physically happening to the rod to change its length or to
>>>> produce a distorted illusion of something physical that is not really
>>>> changing. Since the assumption is wrong, the mental picture is
>>>> misplaced.
>>>
>>> I didn't made that assumption. You did. You said that length contraction is
>>> measurable.
>>
>> Yes, indeed. Length is the result of a measurement. When you make this
>> measurement, however, you are not measuring an intrinsic property of
>> the object.
>>
>>
>>> All the experiments you cited are based on that space in the
>>> direction of motion is contracted. This is not the same as that a moving rod
>>> is contracted as you said.
>>
>> No, those experiments do NOT say which, or indeed if either, of space
>> or the rod in space is contracted. Those experiments just verify that
>> the measurements will produce what SR says the measurements will
>> produce. SR is what says there is no deeper physical meaning to the
>> length than what the experiment measures. No experiment is capable of
>> verifying that, though the experiments are capable of verifying every
>> *measurable* prediction of SR.
>>
>>> BTW space contraction is just a different way of describing that the moving
>>> frame has a higher state of absolute motion. Higher state of absolute motion
>>> produces a higher light path length for a physical rod. That, in turn,
>>> causes the rate of a moving clock to run slower than a stationary stay at
>>> home clock. That, in turn, means that a moving clock second has a longer
>>> duration (absolute time) than a stay at home clock second. That's why a fast
>>> moving moving upper atmosphere muon is able to reach the earth's
>>> surface.....the (2.2 us) lifetime of the fast moving muon (in the fast
>>> muon's frame) represents ($\gamma \cdot 2.2$ us) lifetime on the earth clock.
>>>
>>>>
>>>> SR says that length is not an intrinsic physical property of an object.
>>>>
>>>> This is just a bogus assertion. You have no proof of that.
>>
>> I have no proof of what SR says? How about reading a few books on the
>> subject?
>>

Re: The true crackpots

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>>>

>>> Ken Seto

>

> Length contraction has been variously explained as

>

- > 1. true but not really true
- > 2. real
- > 3. not real
- > 4. apparent
- > 5. the result of the relativity of simultaneity
- > 6. determined by measurement
- > 7. a perspective effect
- > 8. mathematical.

I don't care to try to fit my explanation into any of these categories, nor defend any of the categories above. The way I explained it is, to the best of my knowledge, an accurate representation of the truth. If you find that this clashes with other explanations you've heard, this (sadly) is not my problem nor anything I can help you with.

>

> (CF. <http://perso.wanadoo.fr/mluttgens/sapere.htm#to>)

>

- > The one I prefer is "true but not really true". In fact,
- > it is a mathematical ephiphenomenon with no physical reality
- > whatsoever.

As an example of what I said above, I don't even know what "true but not really true" means. I maintain there is indeed a physical reality to the measurement, and that the effect on the measurement due to the motion of the measurer is very real. However, the attribution of the measurement to some deeper physical attribute of an object is what is unwarranted, unneeded, and (as it turns out) wrong to boot.

- > If you want to convince yourself, just use time
- > dilation to explain the MMX.

Just a brief comment on this. You are apparently under the impression that SR says that length contraction and time dilation happen independently or under different circumstances. This is not the case.

In fact, what SR says is that the quantity

$I^2 = t^2 - l^2$ (where t is the measured time difference between two events, and l is the measured spatial difference between two events)

will remain constant independent of the motion of the observer. Thus, if in going from one observer to the other and length contraction is observed (that is, l^2 changes), then *necessarily* time dilation is also observed (that is, t^2 changes). A more in-depth explanation of this point is available in Spacetime Physics, by Taylor and Wheeler.

Your claim that MMX is better explained as time dilation rather than as length contraction would cause physicists to scratch their heads, because they know that it is not a choice between one or the other, as

both happen as indeed they must.

PD

• *Follow-Ups:*

- ◆ **Re: The true crackpots**
◇ *From:* mluttgens
- ◆ **Re: The true crackpots**
◇ *From:* kenseto

• *References:*

- ◆ **Re: The true crackpots**
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◇ *From:* mluttgens

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