Re: time dilation

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On Apr 10, 7:40 pm, rbwinn <rbwi...@xxxxxxxx> wrote:

> The work of famous scientist Galileo Galilei provides us with a question about time dilation and Dr. Albert Einstein's statement that the laws of physics must remain the same in all frames of reference. Galileo carried two lead weights of unequal sizes to the top of the leaning tower of Pisa and dropped them at the same time, disproving the idea of scientists of his time that the heavier of the two weights would strike the ground first. Of course, it took some time before scientists accepted the results of his experiment. They did not all believe in the principle of equivalence the moment the two lead weights hit the ground.
>
> This brings us to another question about falling objects which arises from the idea of dropping an object in a moving train car, which writers of textbooks about relativity often use to show how the Lorentz equations work. If a weight is dropped from the top of a train car to the floor, it falls a distance of y'. In any transformation equations this is always expressed as y'=y. The object travels the same distance vertically in S' as it does in S. In Galileo's equations, it takes the same amount of time for the object to travel from the roof of the train car to the floor in either frame of reference. t'=t.
>
> In the Lorentz equations, a clock in S', the frame of reference of the train car, is slower than a clock in S, the frame of reference of the train tracks.
> t'=(t−vx/c^)/sqrt(1−v2/c^2). According to this equation, it takes less time for the object to fall from the roof of the train car to the floor in S' than it does in S. So how are the laws of physics the same in both frames of reference?
>
> If a clock in S ticks once while an object is falling in the train car, it will not tick in S' until after the object has hit the floor. This means that the object is falling with a faster velocity in S' than in S.
>
> I am sure that some of our scientific friends who believe in a distance contraction will be anxious to explain this phenomenon.
> Robert B. Winn

xxein: This is not a case of any distance contraction. In a train, however, the speed is non−relativistic.

So let me explain it to you. If you posed the question of how fast light traveled in a traincar from the front to back, the answer is not contained in any particular measurement. You know that your clock to measure by is also affected. (I hope you do anyway). But it is mathematically realised as c because that is what you will measure.

Here's the problem with your question. Any notion of length contraction (real or supposed) is based upon the 'direction' of travel. While any moving clock will beat slower, a distance will remain the same distance. It is only when a physical object like a barn vs. pole is relativised that a contraction has to occur in some fashion or another. Why? Because that's what we can measure.

Is it real? I'll let you make a stew for a while.

OK. But a length contraction is only functional in a single dimension. You got that? A clock will slow regardless of dimension. Velocity only. Velocity wrt what?

We can measure pretty good. We developed a math to cover it. Good for us. But does it mean we understand the logic of a physic? Apparently not.

Missed you for a while. Now bug off before you become the pest you were in the past.
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