

Re: HOCUS POCUS

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- *From:* "Mike" <eleatis@xxxxxxxx>
 - *Date:* 14 Sep 2006 06:41:38 -0700
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Randy Poe wrote:

mluttgens@xxxxxxxx wrote:

PD wrote:

mluttgens@xxxxxxxx wrote:

HOCUS POCUS

Two electrons E1 and E2 are ejected along a straight line with opposite velocities v_1 and v_2 from a device stationary in S, at $t=0$ according to S clock.

Assuming that $v_1 = -0.6 c$ and $v_2 = 0.8 c$, what is the relative velocity between E1 and E2 ?

After a time interval t measured on his clock, S will conclude that the distance separating E1 from E2 is $(0.6 + 0.8) ct = 1.4 ct$, hence that E2 is moving away from E1 at $V = 1.4 c$, or that E1 is moving away from E2 at $V = 1.4 c$, meaning that the relative velocity between E1 and E2 exceeds c .

Yes, and there is nothing wrong with that.

Ein Zwei Ein Stein HOCUS POCUS
E1 = S',
 $V = (.8 c - (-0.6c)) / (1 + 0.8*0.6) = 1.40/1.48 c$

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= $\sim 0.9459 c$
E2 moves at $1.4/1.48 c$ relative to S'
E2 moves at $1.4/1.48 c$ relative to E1
ABRACADABRA
 $420000 = \sim 283784$

By assimilating E1 to a frame S' moving away at $-0.6 c$ from a frame S, Sristis claim that the electron E2, which had a velocity $V = 1.4 c$ wrt E1 measured in S, has only a velocity $V' = \sim 0.9459 c$ measured in S'.

Yes.

But the electrons don't bother about which name they are given, nor does their relative velocity V depend on their velocity wrt the device by which they have been emitted. Such device –the frame S according to SRists– should be ignored after their emission, it belongs to history.

Not at all. You seem to think that relative velocity between two objects should be a frame-independent quantity. It's not. I don't know why you think it should be.

I am skeptical about the physical validity of a formula (the relativistic addition of velocities), which gives an infinity of solutions for a same velocity V between two objects, for instance $1.4 c$, measured in one frame (S in my example).

Because you have divine knowledge that separation rate is independent of reference frame?

Well, the rest of us without divine knowledge are stuck with describing what we see in experiment, which is that the Lorentz transform is valid.

You cannot devise an experiment to validate the velocity addition formula since that would require measuring the OWSL. The velocity addition formula is a deduction from the postulate of c invariance in inertial FoR. So talk about valid deduction, it is ok, but do not bullshut people that this is experimentally verified.

Mike

There's nothing I can do about the fact that your divine knowledge contradicts experiment, that there is some unknowable "reality" different from my observable universe and accessible only to you.

So I'll stick with the equations that describe life in my universe.

Let's consider a planet inhabited by advanced ET's, situated at x billions light-years from the Earth. Their physicists, from the redshift of the Earth galaxy A and the Hubble constant, calculate that the Earth is moving away from them at $-0.7c$. Opposite the Earth, they observe another galaxy B, whose velocity relative to them is $+0.7c$.

They conclude, in accordance with the cosmic expansion, that such galaxy has a velocity $1.4c$ relative to the Earth.

No, they conclude that those two points are separating IN THEIR REFERENCE FRAME at $1.4c$.

As they have mastered FTL communication, they transmit those data to the Earth SRists, who calculate that B is in fact moving away from them at $0.7c + 0.7c / 1 + 0.7*0.7 \approx 0.94c$, forgetting that it is impossible to observe a galaxy moving away at $1.4c$.

On Earth, galaxy B is OBSERVED to be moving away at $0.94c$. Earth scientists easily calculate that the two points are separating at $1.4c$ from the point of view of Planet X. They also can see galaxy C receding at $0.7c$ (i.e., separating from Planet X at $1.4c$ IN THE EARTH FRAME). They can easily calculate that IN PLANET X FRAME, the observers on Planet X would see Galaxy C receding at $0.94c$. Planet X sends a message confirming that the redshift of Galaxy C is consistent with a relative

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velocity of $0.94c$.

– Randy