UNDERSTANDING SPECIAL RELATIVITY

ABSTRACT

A Special Relativity practical illustration is given below where, a light pulse on a train (frame 1), the train moving with uniform motion relative to the ground (frame 2) is compared with another light pulse from an overpass (frame 2) as the pulse moves from the front to the back of the moving train itself, all in frame 1.   An observer on the train (frame 1) measuring both pulse velocities in the frame of the train, measues both pulses going at the constant speed of light, c, from the front of the train car to the back of the car.

However, the observer on the train car in frame 1 looking at the light pulse in frame 2, coming from frame 2, sees the pulse from frame 2 as blue shifted, and measures its relative speed of light, c', as appearing greater than the constant speed of light, c, as measured before while looking at both pulses moving in frame 1.   The pulse of light ITSELF from frame 2 is not affected whatsoever by the uniform motion.   The pulse of light originated and observed on the train in frame 1 is not affected OR blue/red shifted by the uniform motion relative to the ground or any other uniform motion .   This is Dr. Einstein's Relativity Principle, which says that physics is the same INSIDE all frames, regardless of their uniform relative motion.

FIRST ANALYSIS

Dr. Einstein's 1905 through 1952 widely published principle of relativity and the de Sitter adopted constant speed of light are OK until Dr. Einstein tries to transform (he called this Special Relativity) actual light speed of a pulse sent from one frame to a second frame having uniform relative motion with respect to the first frame by incorrectly saying that $c = c'$ rather than by correctly saying that $t = t'$.   See www.k1man.com.c29.pdf   The former resulted in $t = t'$(square root of $1 - v^2/c^2$), time dilation, both a metaphysical IDEA of time itself slowing down and the actual fact of clock "clicking" slowing down, which Dr. Einstein jumped on with vengeance.   Dr. Einstein used a restricted 90 degree Lorentz transformation.   If he more correctly used $t = t'$, the restricted 90 degree Lorentz transformation would have been $c' =$ the square root of $(c^2 + v^2)$ where c' would be the relative speed of light.   Dr. Einstein simply did not understand the difference between the indeed constant speed of light and the quite different relative speed of light.   He carried this fatal misunderstanding throughout his entire life and dragged millions of scientists with him.   You included?

SECOND ANALYSIS

ASSUMING t = t'

To help visualize this, consider a train car and an overpass in a huge vacuum dome moving from left to right toward the overpass at velocity v relative to the overpass.   Neglect earth movement and minor overpass angle for the time being.   Light 1 at the front of the car pulsed at time zero (t = 0) arrives at the back of the car at time t.   Light 2 on the overpass pulsed and passing light 1 at time zero (t = 0) also arrives at the back of the car at time t, (speed of light constant), but, relative to the overpass, the back of the car has moved from left to right a distance v't.

For someone on the ground, with no motion relative to the overpass, the light 2 pulse appears to travel a shorter distance (c't – v't) = t (c' – v').   Primed values are relative to the ground.

For someone on the train, the light 2 pulse travels the longer distance ct.

Correctly transforming between frames, t(c' – v') = ct or c' – v' = c or c' = c + v' where c' is the relative speed of light and c is the illustrated above constant speed of light.   This relative speed of light from light 2 is dependent on v, but that light pulse itself is in no way affected except that a blue shift at the back of the car of light 2 is measured.   Thus, the RELATIVE energy of the lghit 2 pulse is larger due to relative uniform motion per E = hf, where f is the blue shifted frequency of light 2.

Note that the above first analysis uses a restricted 90 degree transformation which is quite misleading since there are actually an infinite number of degrees that could be used when transforming between frames in uniform relative motion.   See www.k1man.com/c29.pdf

Understanding the above is understanding Special Relativity.   Dr. Einstein made only one relevant error. He did not understand the difference between the constant speed of light and the relative speed of light. Do you?   QED See also www.k1man.com/b and www.k1man.com/Munch140710A.pdf

PHILOSOPHY OF SCIENCE

Dr. Einstein wrote his 1905 Special Relativity paper at a patent office at age 26.   He did not yet have a PhD. He attended the famous Solvay conferences and impressed all the world famous scientists with his physics such that they accepted, without much thought, relativity theory, for which they could not follow the math much less find his buried geometrical error of setting c = c'   It is hidden out of sight among all the confusing and seemingly advanced math, when the whole theory is really just high school algebra.   He got the Nobel Prize in 1921 for the photo electric effect, and the Eddington observations, Mercury calculations, together with the fission bombs, seemingly confirming E = mc^2, plus his funny looking hair, boosted his viral rise of world wide fame.   He suggested a whole new physics, where even metaphysical time itself slows down.   Main stream missed his c = c' error, and all that followed actually radically changed the entire world wide philosophy of physics.   All this cannot be fixed by simply understanding the c = c' error.   Dr. Einstein has to be "de throned" , so to speak, starting with fixing the
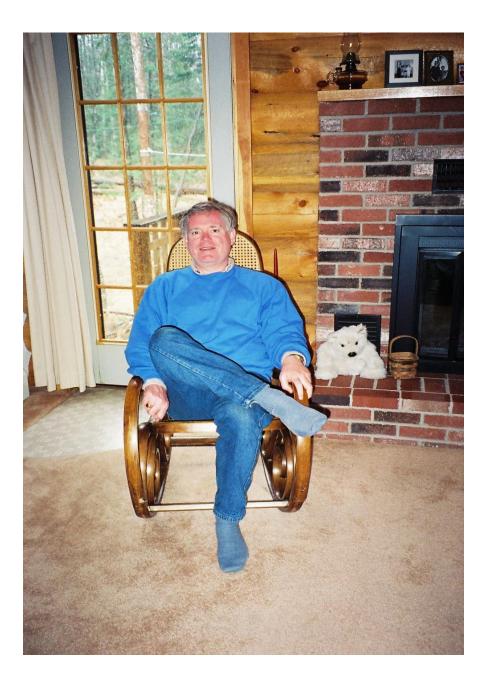
c = c' fatal error, and then cleaning up all the mess, changing all the encyclopedias, most PhD thesis papers, all physics textbooks, and the world view of millions of people, including all 7th grade science teachers and on up to all living physics and chemistry Nobel Prize winners.   It will take a 100 or more years?   Huge mess.

"To kill an error is as good a service, and sometimes even better than, establishing a new truth or fact."

Charles Darwin

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"Great causes are never tried on the merits; but the cause is reduced
to particulars to suit the size of the partisans, and the contention
is ever hottest on minor matters."  -  Ralph Waldo Emerson - From his
essay "Nature" 1844
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* Mr. Baxter has a degree in Industrial Engineering from the University of Rhode Island and is a Licensed Professional Engineer in Illinois and Maine.   He is a graduate of Vermont Academy, which honored him in 1993 as a Distinguished Alumnus with the Dr. Florence R. Sabin Award. It was at Vermont Academy as a student where Mr. Baxter attended a talk and met the very popular relativity author James A. Coleman[3].   Mr. Baxter has been doing research in relativity and physics ever since and is currently Executive Director of the Belgrade Lakes Institute for Advanced Research.   His current interests include physics, philosophy, and theology.

Glenn A. Baxter, P.E., at his home in Belgrade Lakes, Maine   U.S.A.

See www.k1man.com/g

Glenn A. Baxter, P.E., age 4, with his dad, Frank H. Baxter (Bachelor of Science Degree, Mechanical Engineering, 1914, Rhode Island State College), and President of Frank H. Baxter Associates, 370 Lexington Avenue, New York City.   See www.k1man.com/fhb and also www.k1man.com/w10   and www.k1man.com/Loons