

THE CRUX OF SPECIAL RELATIVITY - Copyright 10 January 2012 by Glenn A. Baxter, P.E.*

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Institute@k1man.com www.k1man.com/p www.k1man.com/physics

ABSTRACT

We identify exactly where Special Relativity went wrong in 1905 and present a practical modern day and easily reproducible experiment to exactly verify the newly developed Special Relativity mathematical equations presented here.

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INTRODUCTION

J.A. Rybczyk (www.k1man.com/f18 and www.k1man.com/w1) vigorously disagrees with Dr. Daniel Y. Gezari’s analysis of the NASA data disproving Special Relativity (www.k1man.com/f61), and has recently stated to me his view of light speed invariance as having a dual nature. He stated that light does not “take on” the velocity of the source (www.k1man.com/f18). No, it doesn’t, per se. That’s the whole thrust of relativity! For me, on a train platform (See www.k1man.com/c1-6), the light APPEARS to have taken on the velocity of the train. You could just as well have considered the train to be “stationary,” and the train platform as having the velocity and “catching up” a tiny bit with the train, so to speak. Either way, the RELATIVE velocity of the light between the train and the train platform is c plus v , the velocity of the train. It is exactly here where Dr. Einstein made his fatal error. He said that the relative TIME is different. It is!. But that relative time difference cannot be plugged in, via the Lorentz right triangle, as a relative velocity of light difference of zero (his “The speed of light is constant, relative to all observers), leading directly, via the Pythagorean theorem* to an ACTUAL CLOCK TIME difference of $t = t' \sqrt{1 - v^2/c^2}$, which then leads directly to all of Dr. Einstein’s incorrect subsequent calculations including $E = MC^2$. Dr. Einstein went so far as to state in his famous 1905 paper:

“.....Thence we conclude that a balance clock at the equator must go more slowly, by a very small amount, than a precisely similar clock at one of the poles under otherwise identical conditions.”

Dr. Einstein treats $E = MC^2$ as generally true for ALL matter. It isn’t. It is, however, accurate (by sheer coincidence on Dr. Einstein’s part) with electron – positron annihilation during fusion, with the balance of matter, (indeed, most matter in our practical universe – anti-neutrons, et al) in the fusion process, as postulated in my anti-neutron theory of matter. See www.k1man.com/c2. So, sincere congratulations to J.A. Rybczyk for directing our attention to the exact place where Dr. Einstein and so many others went wrong since 1905.

EXPERIMENTAL DISPROOF OF SPECIAL RELATIVITY -

RELATIVISTIC DOPPLER EFFECT CORRECTED

If a light source is moving towards an observer in uniform motion, the standard physics textbook formula for the Doppler shift (see The Feynman Lectures On Physics, Vol., 1 Chapter 34, Page 7) is:

$$W = W_0 (\sqrt{1 - v^2/c^2}) / (1 - v/c) \quad \text{eq. (1)}$$

The correct (Baxter Relativity) formula (11) for this situation is:

$$W = W_0 (1 + v/c) / (1 - v/c) \quad \text{eq. (2)}$$

Thus, when $\frac{v}{c} = 0.1$,

the incorrect conversion factor from Dr. Feynman's relativistic Doppler formula is a frequency blue shift of 1.105541597 rather than the correct Baxter relativistic formula giving a blue shift factor of 1.222222222. Not a big difference here, but Dr. Feynman was sucked in (like everyone else) to relative light speed being constant and thus leading to Dr. Einstein's completely falsely based theory of Relativity. The ramifications of this are huge, since Dr. Einstein's relativity theories are laced throughout most of current physics thinking.

EXPERIMENTAL DISPROOF OF SPECIAL RELATIVITY:

Eq. (1) above represents Dr. Einstein's formula for the Doppler shift, including his relativistic time dilation, between an electromagnetic source (a light source or a radio transmitter) and an observer (or a radio receiver). $(\sqrt{1 - v^2/c^2})$ represents the Einstein relativistic time dilation portion and $(1 - v/c)$ represents the classic Doppler shift portion. Eq. (2) above represents the corrected Baxter relativistic Doppler formula which replaces the Einstein time dilation portion with $1 + v/c$ which represents, instead, the increased relative velocity of light rather than a slowing of time "caused" by relative motion.

In this experiment we use two earth satellites travelling in opposite directions. One satellite has a 30 MHz. transmitter and the other has a receiver. A typical amateur radio transceiver can transmit and receive to an accuracy of 10 cycles per second compared to the 30,000,000 cycles per second of this experiment. We use earth satellites to eliminate any effect that atmosphere or gravity might have on the speed of light.

Both satellites travel at a speed, for example, of 25,000 miles per hour. Plugging 50,000 miles per hour into Dr. Einstein's Eq. (1) above yields a "blue shift" frequency of 30,002,240.24 cycles per second. Plugging 50,000 miles per hour into Eq. (2) above yields a "blue shift" frequency of 30,004,480.62 cycles per second, a full 2,240.38 cycles per second higher, a huge difference, which is easily measureable on any amateur radio high frequency transceiver. Thus we have a very simple and quite elegant disproof of Dr. Einstein's Special Theory of Relativity.

(11) $W = W_o / (1 - \frac{v}{c})$ is the classic Doppler “blue” shift (see The Feynman Lectures On Physics, Vol., 1 Chapter 34, Page 7). Rather than Dr. Einstein’s time dilation factor, we, instead use the Baxter speed of light change factor of $\frac{c+v}{c}$ so the total formula becomes $W = \frac{W_o}{1-v/c} + W_o (c + v)/c$ which leads directly to $W = W_o (1 + \frac{v}{c}) / (1 - \frac{v}{c})$ QED It is quite interesting that the Einstein ($\sqrt{1 - v^2/c^2}$) factor causes a slight red shift in opposition to the classic ($1 - \frac{v}{c}$) Doppler blue shift in this situation as the source is moving towards the observer, these opposite effects themselves, being counter intuitive.

A CLEAR EXPLANATION OF THE BAXTER RELATIVISTIC DOPPLER EFFECT

Imagine a light or radio source at point A in deep space and an observer or receiver some distance away at point B. There is a relative velocity between the two, say 50,000 miles per hour, as discussed in Part VIII. We choose deep space to allow us to neglect all other outside influences. We can consider B as still or fixed with A moving towards B, or we can consider A as still or fixed with B moving toward A. We postulate that these two situations are equivalent.

Further, consider a 30 MHz. radio signal being radiated from A which is moving toward B (at the relative speed of 50,000 miles per hour). The signal is a simple continuous radio wave (CW, still used by radio amateurs using Morse code for communications purposes). Consider the peak voltage of a single cycle emitted as an instantaneous pulse being emitted from point A at time T_o . When the very next instantaneous pulse during the next cycle is emitted, point A is a bit closer to point B, and since the speed of light is finite, there is less distance to travel, and therefore, will arrive in less time than the previous pulse sent just before time T_o . The effect is the classic Doppler effect at the receiving end (B) where the pulses are closer together in both space and time and the frequency reading on the radio receiver at point B is higher than 30 MHz., according to the classic formula $W = \frac{W_o}{1-v/c}$. Now, instead of saying that time at point A “slows down” according to Dr. Einstein’s $W = W_o (\sqrt{1 - v^2/c^2})$, “caused” by relative motion, let us consider point A as being still, or fixed, and point B moving toward point A. Since the speed of light is finite, point B will meet the pulse from point A emitted at time T_o part way. Right? The relative speed of light is therefore c plus 50,000 miles per hour. Right? This is not rocket science, to use a play on words. You can still say the speed of light has not changed; nobody bothered the light in this situation at all. But B has met the radio pulse part way, and so the relative speed of light between A and B is greater than the speed of light. This is at the heart of Baxter Relativity as opposed to Dr. Einstein’s relativity which insists that the relative speed between points A and B remain the same, and that, instead, time at point A must therefore “slows down.”

Thus we reject Dr. Einstein’s erroneous postulate of the speed of light always being constant for any observer, and we modify the relativistic Doppler formula from $W = W_o (\sqrt{1 - v^2/c^2}) / (1 - v/c)$ to $W = W_o(1 + v/c) / (1 - v/c)$. See this entire paper at www.k1man.com/b

So, the correct Baxter Relativistic Doppler formula has two things causing the frequency reading at point B to rise, the first is that the distance travelled by the radio or light signal is getting progressively smaller, and second, point B is "catching up" with the signal emitted from point A (or meeting it part way), effectively equivalent to the speed of light being higher rather than Dr. Einstein's slowing down of time.

Now go back and read this entire paper again. www.k1man.com/c1 From his erroneous postulate of the speed of light being constant for all observers, Dr. Einstein builds his entire theory of relativity. Dr. Einstein's theory of relativity is laced throughout modern physics thinking and this needs to be corrected before we can make further meaningful progress.

PRACTICAL BAXTER RELATIVISTIC DOPPLER EXPERIMENTAL PROOF

The index of refraction is defined as the ratio of the speed of light in a vacuum to its speed in another medium such as air. The index of refraction of air at one atmosphere is 1.0002926. Thus the speed of light that we have rounded in Part VIII of this paper to 186,000 miles per second for $\frac{v}{c}$ calculation purposes, would be reduced from 186,000 to $186,000/1.0002926$ miles per second. Now we calculate the Baxter Relativistic Doppler effect for two ordinary aircraft approaching each other, each with an air speed of 250 miles per hour. Plugging this relative air speed of 500 miles per hour into $W = W_0(1 + v/c)/(1 - v/c)$ now changes a 30 MHz. radio signal transmitted from one of the aircraft and received by the other to 30,000,042.9 cycles per second, still easily measured by any modern amateur radio transceiver. The radio frequency dial would actually read 30.000.04.

TERMINAL VELOCITY OF LIGHT IN AIR

In Part VIII, we postulated that in deep space, light from a source at point A moving toward a "fixed" point B was equivalent to the light source A being "fixed" with point B moving toward point A. In the latter situation, we saw that point B moving toward point A would meet the light pulse "part way" and this the relative speed of light between the two points was greater than the speed of light, all this happening in the vacuum of deep space.

In air, things will be different. Light is slowed down by any transparent medium in the amount equal to $1/(\text{index of refraction})$, as pointed out in Part IX of this paper. Light is "trying," but it just can't go the full speed of light (of a vacuum) as it is somehow slowed down by the medium. Now somewhat analogous to sound, the medium sets a terminal velocity for the light, and NOW the velocity of the source relative to the medium (in this case air) will not increase the relative velocity since the situation here is clearly different than the source at point A being fixed relative to the air with point B doing the moving relative to the air. Now, the experiment in Part IX must be looked at differently.

The two aircraft in Part IX now have separate influences if point A is the source since light from aircraft A will reach the speed of light in air and NOT the speed of light in air plus the speed of the aircraft relative to the air. Aircraft B, however, will still meet the light pulse “part way” as before. The Baxter Relativistic Doppler formula for this situation now becomes:

$$W = W_o \left(\frac{1}{1 - \frac{v}{c}} \right) - W_o + W_o(1 + \frac{v}{c}) / (1 - \frac{v}{c}) \quad \text{eq. (3)}$$

With the first term calculating the classic Doppler caused by the source aircraft A going 250 miles per hour relative to the air plus the full Baxter Relativistic Doppler effect of the receiving aircraft B which is still meeting the light pulse from aircraft A “part way.” Now plugging 250 miles per hour into each of the terms of eq. (3) yields a receiving frequency of 30,000,033.63 MHz., still easily readable on a modern amateur radio transceiver. The radio dial would read 30.000.03.

*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(7). 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.

The complete papers of Glenn A. Baxter, P.E. - www.k1man.com/c1-6, www.k1man.com/c1, www.k1man.com/c2, www.k1man.com/c3, www.k1man.com/c4, and www.k1man.com/c5

All of G. Baxter’s papers can be downloaded at: www.k1man.com/v

The complete papers of D. Sasso can be downloaded at: www.k1man.com/k Ed. Comment: D. Sasso disagrees with Dr. Einstein’s Special Relativity. See www.k1man.com/f58

** The Belgrade Lakes Institute For Advanced Research was founded in 1999 to study original scientific work of great thinkers going back as far as possible (even thousands of years) to reexamine ideas in search of hints or inspiration which might apply to current scientific progress in physics. The late Dr. Richard Feynman is an Honorary Member of the Institute, and his lectures and publications serve as a

corner stone for our work and model for our thinking and efforts. Other examples of great thinkers and scientists would include people such as Michael Faraday, Maxwell, Euler, Cantor, Lavoisier, Lise Meitner, Otto Hahn, Bohr, De Broglie, Planck, Avogadro, Boltzmann, Compton, Schrodinger, Dr. Albert Einstein, Newton, Leibnitz, Pythagoras, Descartes, and many others. Membership in the Institute is by application and majority of votes timely cast by the general membership. For more information call the USA number 207 242 2143 or E-mail Institute@K1MAN.com Articles for the Scientific Journal are invited. Our mail address is Belgrade Lakes Institute For Advanced Research, 310 Woodland Camp Road, Belgrade, Maine 04917 USA www.k1man.com/physics