ON THE ERRORS OF SPECIAL RELATIVITY

(A paper)

ABSTRACT

In examining Einstein's paper of 1905 we find he made a basic misjudgment of extreme consequences that this work points out in his own writing, The misjudgment was not mathematical but fundamental. Unfortunately, this error negates the part of the theory that brought Einstein his great fame

WHERE THE ERRORS ARE: time dilation, mass/momentum increase, aberration, longitudinal length, c as the limiting velocity and the composition of velocities.

These parameters do not exist as given by Einstein.

We will give solid reasons why these errors exist and how they were made.

c AS THE LIMITING VELOCITY

It may be difficult to believe – but it is there, written in his own hand – Einstein seemed unaware that it is *forbidden to divide by zero.* He based his statement that velocities beyond c were not possible, on division by

zero. As he put it: [1]
(Where W = kinetic energy)

$$\begin{aligned} W &= \int \epsilon X\, dx = m \int_0^v \beta^3 v\, dv \\ &= mc^2 \left\{ \frac{1}{\sqrt{1 - v^2/c^2}} - 1 \right\}. \end{aligned}$$

"Thus, when v=c, W becomes infinite.

Velocities greater than that of light

have-as in our previous results-no

possibility of existence."

Thus when "v=c", the v^2/c^2 becomes 1, and 1 – 1 = 0. The zero would then be divided into 1 – *only that is verboten.*

The correct approach is to use the theory of limits. Anyone who has had calculus has to be familiar with the theory of limits.

Now one could advance an argument in favor of Einstein and point out that he knew you could not divide by zero but was being loose handed in offering v=c – knowing that the end result was the same: As v approaches c *as a limit*, W approaches infinity.

But the rebuttal is: Since both operations – division by zero and the application of limits – lead to the same result, why not choose the proper one?

One could also argue against the general approach which leads to quoting energy in terms of mc^2.

m (whatever it is) is invariant as is c. So quoting kinetic energy in terms of n mc^2 does so by excluding any reference to variable velocities. It is true that velocity enters the equations via the Lorentz transformation but there it is limited to c – and further it is eliminated (as v^2) when divided by c^2 because then it becomes simply a dimensionless number .

Since kinetic energy is mass in motion, we prefer the method of Newton in expressing kinetic energy in terms of velocity and developed an equation based on the

Newtonian approach, $E = \frac{mv^2}{2}$.

The equation is,

$$E = \frac{mv^2}{R + R^2} \qquad \text{(where R= the Lorentz transform).}$$

It will be found this gives *exactly* the same result as Einstein's equation. However, there is a difference. In Einstein's equation, when v approaches c as a limit, the fraction (and therefore energy) approaches infinity – therefore no velocity is possible beyond c.

In our equation,

$$E = \frac{mv^2}{R + R^2} = \frac{v^2}{\mathrm{sqrt}(1- v^2/c^2) + (1- v^2/c^2)}\, m,$$ we have velocity in the numerator

Since we correctly discuss c as a *limit*, v in the transform never reaches c and division is always allowable. That allows us *an infinitely great* v *in the numerator* with an infinitely great E.

In our equation, $(R + R^2)$ *approaches* zero but never reaches it; consequently v^2 has infinity as a limit, ergo *we have super c velocities*.

Since m is invariable, the variation occurs with v^2 which becomes the major parameter. Thus we have

$$E = m \frac{1}{(R+R^2)} v^2 = m\, n\, v^2$$

(where $n = 1/R+R^2$)

Given the resultant $E = mnv^2$, we find v by: $v = \sqrt{E/mn}$.

As it turns out, the v in the Lorentz transform is not the same as the v in the numerator. The v in the transform has c as a limit, its square is divided by c^2 and becomes a dimensionless number, whereas v in the numerator remains a velocity, i.e., it is a modified v that has no limit. The v is an observation of V(There is additional clarification below.) Note that v/R=V.

Since we have a choice between two different equations, we seek to find if one is preferred.

Einstein:

$$W = \int \epsilon X \, dx = m \int_0^v \beta^3 v \, dv$$
$$= mc^2 \left\{ \frac{1}{\sqrt{1 - v^2/c^2}} - 1 \right\}.$$

"Thus, when v=c, W becomes infinite.

Velocities greater than that of light

have -- as in our previous results—no

possibility of existence".

Here we see velocity has c as a *limit* – or else we have to divide by zero. In addition, the quantity within the brackets is a dimensionless number. Thus the result is n mc^2 which is correct but there is no variable velocity given in the result..

Our Equation:

$$E = \frac{v^2}{R + R^2} m = \frac{v^2}{\mathrm{sqrt}(1- v^2/c^2) + (1- v^2/c^2)} m$$

Here, the velocity in the denominator has c as a limit, the velocity in the numerator has infinity as a limit. Thus kinetic energy is given in terms of velocity (squared), and super c velocities are possible while Einstein gives it in terms of mc^2 where c is the limiting velocity. There is a further importance: The v in the denominator is the relative velocity because c is its limit, whereas the v in the numerator is the observation of V, the

Newtonian velocity, which is the velocity associated with the moving observed coordinate system and is its unaltered (proper) distance per time. Note, v is the observation of that velocity and is the lesser by R. The observer observes v but not V. Put another way, v *is the observation of* V. We write that V R = v. To restate: V is the velocity of the observed system, v is the observation of that velocity.(To see how V is obtained from v, see addendum.)

Re rod length:
(length = distance, and velocity = distance /time. Since the rod's proper length (distance) appears to contract, then proper velocity appears to contract.

V = proper velocity, and v = the observation of V. (Note, V is Newtonian velocity.)

To obtain V from v: $\mathrm{sqrt}(v^2) / \mathrm{sqrt}(1- v^2/c^2) = V$

The correct expression for a ponderous body, since R never reaches zero, is

$$E = \frac{mv^2}{R + R^2}$$, or more correctly $$E = mv^2 \frac{1}{R+R^2}$$

For light, to which R does not apply, and which *has* the velocity c, we drop the R. and change v to c. Thus the kinetic energy for radiation is $E = mc^2$.

In confirmation, Einstein gives the mass of radiation[3] as $m = E/c^2$. (Although he used L instead of E – apparently to differentiate radiation energy from ponderous mass energy.)

Light does have mass. Where n is the frequency number, the mass is

n * 7.37203854 x 10^{-48} gram. That mass times c^2 = h nu . From this we deduce that each element of vibration has a mass of 7.37203854 x 10^{-48} gr. *This will be found true not only for radiation, but for electrons, protons and neutrons as well, i.e., the frequency number times the given mass equals the mass of the particle.* Thus we see matter and radiation as being composed of a common particle.
(See "On the Quantum as a Physical Entity" by Vertner Vergon .[13])

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Before we proceed, a few words in preparation.

About Einstein's general technique: The first thing we noticed is that he divides his paper into two distinct parts, the "KINEMATICAL PART", and the "ELECTRODYNAMICAL PART", yet the title of his paper only contains reference to the electrodynamical part ("On the Electrodynamics of Moving Bodies")

The difficulty is, he mixed the two parts together and obtained erroneous results. Kinematics and elctrodynamics are two separate disciplines and should be kept separate – which he apparently meant to do but did not succeed..

The Encarta® World English Dictionary, North American Edition describes kinematics as: "**study of motion:** a branch of physics that deals with the motion of a body or system without reference to force and mass (*takes a singular verb*)"

In kinematics *there is no contact between systems* including mass and forces or force fields (except gravity) therefore there can be no physical alteration of parameters. Contact would require consideration of mass and forces.

(Gravity is, in a sense, a maverick. It belongs to neither the electrodynamical or kinematical realm. It has no electrical or magnetic charge, so it is not electrodynamical – and it entails "action at a distance", so it is not kinematical. We note Einstein did not include gravity in special relativity but developed a separate theory for gravity. We also note that bodies in free fall are considered kinematical because there is no contact *and gravity is not considered a force.* We disagree because gravity *is a force* and forces are excluded from kinematics. (See On the Quantum as a Physical Entity by Vertner Vergon [13])

The same dictonary – Encarta – describes force: **influence that moves something:** a physical influence that tends to change the position of an object with mass, equal to the rate of change in momentum of the object. *Symbol, F.* (As to "a physical influence" see "On the quantum as a physical Entity" by Vertner Vergon.[13])

Electrodynamics, having electric and magnetic fields can, of course, affect bodies not in physical contact.-- which is what special relativity deals with.

The main contribution to the failings of relativity is the fact that Einstein *did not make clear that the parameters observed in a moving coordinate system* are *observations only*. A rod in the moving system does not change in length, a clock does not change its rate of time, and the mass of an object remains constant. *This is because the relationship between systems concerning these parameters is kinematical and not electrodynamical.*

We might also remark that the "moving system" need not necessarily be so. The system of the observer might be in motion and the "moving system" at rest. And as a system at rest, the parameters would not change. This, of course, is in a kinematical event and a result of the principle of relativity.

Not enough is spoken of the principle of relativity. Einstein mentions it once in his 1905 paper:[4] " If, on the contrary, we had considered a metre rod at rest in the *x*-axis with respect to *K*, then we should have found the length of the rod as judged from *K′* would have been ; $\sqrt{1 - v^2/c^2}$, *this is quite in accordance with the principle of relativity which forms the basis of our considerations"*.

So let us follow that through and see how significant it is. (This is what Einstein failed to do.)

Paraphrasing: We have two systems, A and B in relative motion. It is equally valid to say A is at rest and B in motion as it is to say B is at rest and A in motion. *It is strictly arbitrary.*

Now we have two scenarios – *and these are strictly by Einstein's proclamations.*

Scenario 1:

A is at rest and observes changes in the parameters of B. *These changes actually exist in B.*

Scenario 2

At the same time – and with equal validity, B assumes it is at rest and A is in motion. Therefore, *the changed parameters are existent in A*. There is nothing in the princple of relativity that prevents the symmetry from being simultaneous.

Then both A and B have the changed parameters existing in their systems.

But both consider themselves at rest – in which case they also have their original at rest (proper) parameters. That means each has two sets of parameters existing simultaneously, the proper set and the set projected from the other system that considers them in motion.. The mass point would have two masses, the clock would tick at two rates, and the meter rod would have two lengths.That cannot be, so we have a reductio ad absurdum.

In consequence, *Einstein's concept of the observed changes actually existing in the observed system is error.*

The only valid conclusion is that the meter rod remains at one meter, the clock does not change its rate, and mass remains constant. Momentum and kinetic energy are, of course zero because both systems are at rest. But for each *as an observer* , the changed parameters do exist in the other system as it is in motion. This is the natural outcome of the principle of relativity.
In short, each system considers itself at rest and its parameters unchanged (proper).

At the same time each observes the parameters of the other to change – but this is an observation only.

In his writing it is not always clear which discipline (kinematics or electrodynamics) Einstein is referring to. He often states, "as observed from" but the question is – is the result real in the observed system or is it just an observation? Apparently Einstein himself was confused. For example, he has a clock travel from A to B.[5] Now obviously the moving clock is in the observed moving system – and it is that clock which he says
runs slow. So what he is saying is that the *observation is real in the observed system.* This is obvious error for he gives no explanation as to how this happens. By analogy, if a fish is observed at a displaced position in a pond it would be error to proclaim that as its actual position. .

Unfortunately devotees have accepted this transference of parameters.
One professor has published a textbook with an example in which a fast moving pole longer than a barn goes through the barn and is inside while both the front and back doors are closed,

As the story goes the pole enters the barn through the open front door, which then closes. The back door is also closed. The pole fits in the barn "*because it has shrunk"*

Then the back door opens and the pole goes on its way.

This is part of the legacy of the Special Theory of Relativity. The fact is –

the pole never shrinks, only the observation of it, and that will not get it

through the stationary barn.

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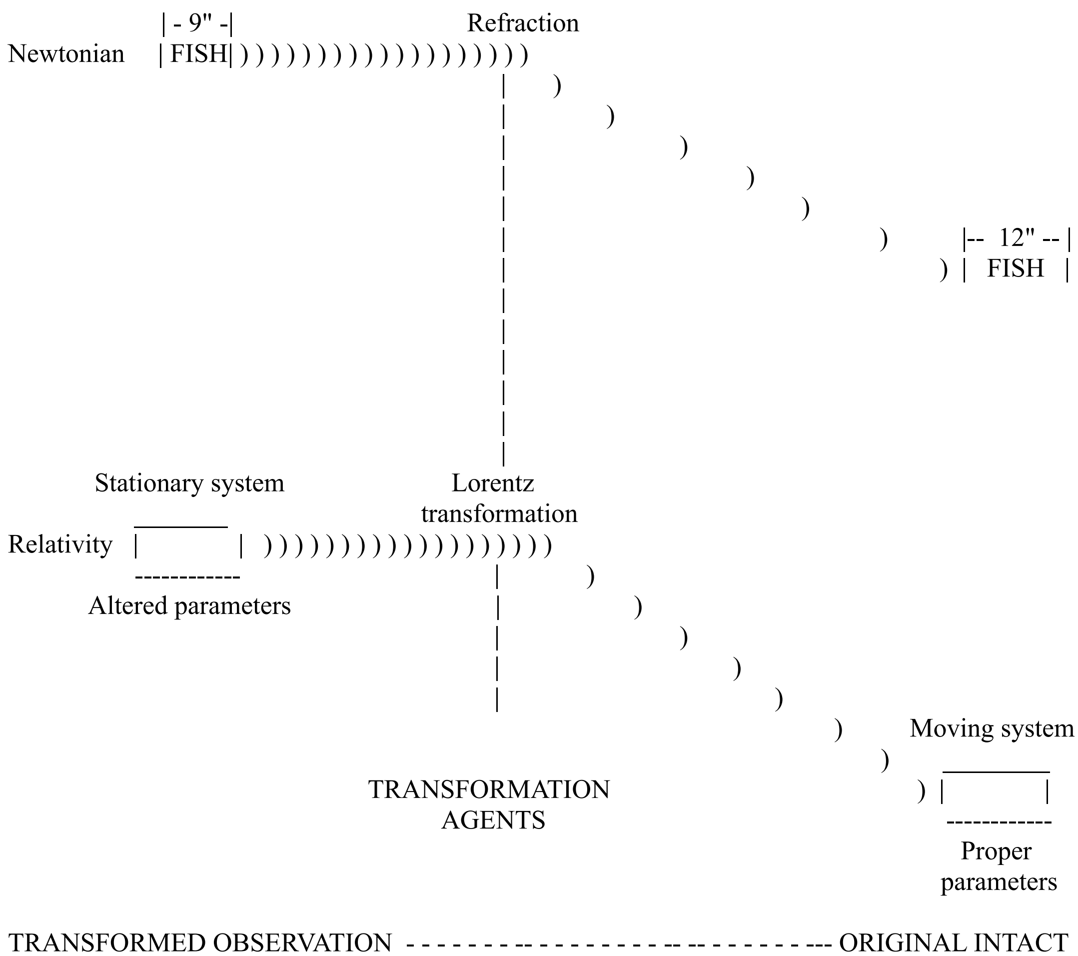
Below is an illustrated analogy displaying the essence of this presentation showing the major misjudgment of Einstein.



Relativity has not been able to show HOW motion per se creates a change of physical properties in the observed system. Both transformation agents utilize light to make the alterations which are *observations only.*

In the case of refraction the agent bends the light. In the case of the Lorentz transformations the distortion is caused by the speed of light, as a messenger, in comparison to the speed of the observed system.

That's why the transformation doesn't manifest until the speed of the observed system becomes appreciable to that of light.

MASS INCREASE

At low velocities, momentum is given by **MASS x VELOCITY** or

$$p = mv$$

However, at high velocities, it is m **x** V that will manifest. Now since

$$V \times R = v ,$$

then $V = v / R$. And as R goes to 0, the expression (V) goes to infinity.

Thus the expression for momentum can be written

$$p = m V \qquad \text{(Eq 1)}$$

.

or

$$p = m \frac{v}{R} \qquad \text{(Eq 2)}$$

.

If one were not cognizant of the existence of V, then he would not write (Eq 1) but would use (Eq 2) instead, thus creating a momentum in excess of that called for by mass times velocity or mv, the classical momentum.

Because v was considered limited to c, Einstein and his cohorts attributed the increase or *excess* momentum not to a V greater than v but to a moving mass greater than the rest mass. In effect, they wrote

$$p = \frac{m}{R} v \qquad \text{(Eq 3)} .$$

Mathematically there is no difference between (Eq 2) and (Eq 3):

To further confuse the issue, momentum is written,

$$p = \frac{m\,v}{R}$$

where it is assumed R modifies ***m***, and the specter of relative mass was born. Obviously, R modifies v which is the observation of V. (same as in the equation for kinetic energy). As v goes to c, V goes to infinity.

V is a Newtonian velocity and v is relativistic.

Modern physicists contemplate the mass increase as m/R. The fact is Einstein gives longitudinal mass increase as m/R^3. This error has been quietly corrected.

TIME DILATION

The Doppler effect and time *rate* are, in this work, dealt with together for *they are in fact one entity.*

A known constant emitted frequency *is a clock* (The cesium atomic clock is our new standard for the second) and all observations of variation in emitted frequencies (red and blue shifts) are *direct observations of variations of that clock, i.e., variations of time rates.*

It may be argued that these observations are simply resultants of the mechanics of motion and wave phenomena (Doppler effect per se) and so they are; the point is, *so are observed time rate parameters.* In fact, one is inevitably drawn to the stated position that Doppler phenomena and time rate phenomena are synonymous, for what difference does it make *how* one measures time, with a known constant frequency emission or a standard mechanical clock?

The difficulty in establishing this obvious viewpoint is that there does not exist, in Einstein's theory, relative time rates *greater than proper. Yet astronomers routinely observe objects approaching whose time rates (Doppler rates) are greater than proper, viz., the frequency, thus the time rate, is greater than proper (shifts toward the blue) which means time is observed to run faster.*

In his theory Einstein proposes two identical clocks at A.[6]

One travels in a closed circle and returns to A. Einstein says that clock will have run slower and be behind the stationary clock at A. It is paten that the traveled clock has traveled *away* from and *toward* A.

Einstein says nothing about the time rate being advanced during the return journey. That means it is (according to his theory) running slow during the approach leg of its journey. *This is contrary to empiricism.*

There is a secondary error here in that Einstein definitely declares that – without any contact – the moving clock actually slows down. The fact is, the clock is at rest in its own system and does not change its rate of time. *Only the observation of it changes*.

So here, definitely, Einstein has taken what is an observation only and declared it as a reality in the observed system. He gives no reason other than motion causes it. He gets this result purely by mathematics.
His declaration is also contrary to the principle of relativity where the moving system could just as well be the stationary system. And in the stationary system the parameters do not change.

The summation of all this is that Einstein's time dilation is error, should be eliminated and replaced by Doppler time.

We now illustrate Einstein's confusion and error by quoting his work with our comments interjected in italics between parentheses. Here

Einstein deals with time:

"Further, we imagine one of the clocks are qualified to mark the time t when at rest relatively to the stationary system and the time τ when at rest relatively to the moving system, to be located at the origin of the co-ordinates of *k* (*the moving system observed*) and so adjusted that it marks the time τ. What is the rate of this clock, when viewed from the stationary system? *(He should have said, "... the apparent rate...").* Between the quantities x, t, and τ, which refer to the position of the clock, we have, evidently, $x=vt$ and

$$\tau = \frac{1}{\sqrt{1 - v^2/c^2}}(t - vx/c^2).$$

(It would be nice if he explained his *reasoning in obtaining his equations*.)

Therefore,

$$\tau = t\sqrt{1 - v^2/c^2} = t - (1 - \sqrt{1 - v^2/c^2})t$$

whence it follows that the time marked by the clock (viewed in the stationary system) is slow by $1 - \sqrt{1 - v^2/c^2}$ seconds per second, or -- neglecting magnitudes of fourth and higher order-- by 1/2 v^2/c^2. (*Again, this is the time observed "in" the stationary system. It would be clearer to say, 'observed <u>from</u> the stationary system'. He obviously was not familiar with semantics.*)

From this there ensues the following peculiar consequence. If at the points A and B of K (*the stationary system*) there are stationary clocks which, viewed in the stationary system, are synchronous; and if the clock at A is moved with the velocity v along the line AB to B, on its arrival at B the two clocks no longer synchronize, but the clock moved from A to B lags behind the other which has remained at B by ½ tv^2/c^2 (up to magnitudes of fourth and higher order), *t* being the time occupied in the journey from A to B. It is at once apparent that this result still holds good if the clock moves from A to B in any polygonal line, and also when the points A and B coincide. (an errroneous assumption)

If we assume that the result proved for a polygonal line is also valid for a continuously curved line, we arrive at this result: If one of two synchronous clocks at A is moved in a closed curve with constant velocity until it returns to A, the journey lasting *t* seconds, then by the clock which has remained at rest the travelled clock on its arrival at A will be ½ tv^2/c^2 second slow."

(*Here is the faux pas. Firstly we note that if the clock travels in a circle, it is both receding from and approaching the observer at A. Velocity is a vector, and vectors in opposite directions do not produce identical results. If a vector in recession produces slower time, a vector in approach will produce faster time.*

Secondly, we also note that the observer at A is stationary, thus the slower time of the moving clock is an observation only. So what Einstein is doing is taking the observation of slowness and placing it as a physical fact in the *moving system. This is a kinematical event where contact is necessary to affect change in another system. In other words, it cannot happen because there is no contact.*

We see here perhaps why students of the theory suppose that <u>*observations*</u> *of parameter changes actually occur in the observed system. It is this misconception that created the fable of the Twins Paradox. It is assumed that the slowness of time observed of the traveling twin – by the earth twin— actually transpires in the traveling twin's system. It does not. His clock runs at the same rate as the earth twin's clock but the earth twin sees it as running slower in recession and faster in approach.*)

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

(*Experiments with atomic clocks in satellites seem to verify this prediction. But the situation is as follows:*

A clock circling the earth in a satellite is sending out signals to the earth. At all times the satellite (clock) is traveling tangentially to the signal receiver. By a strange coincidence, an emitter traveling tangentially to a receiver will produce a Doppler signal of the same value as Einstein's time dilation. (See the Ives & Stillwell experiment) [8]

COMPOSITION OF VELOCITIES

As for Einstein's composition of velocities, one finds that if they take the momenta of the components and add them they do not equal the momentum of the result. This violates the conservation of momentum law. The addition is in a closed system and momentum should be conserved.

EXAMPLE:

We assume a coordinate system, Y. In that system approaching each other in a bypass mode are two one gram mass points, A and B. Each has a velocity of .75 c relative to Y.

As they pass each other, they each ascertain the passing velocity of the other.

They can do this by calculating the velocities relative to Y, and then assume their own system is inertial and accept their calculations as the velocity of the passing other. To do this they must add .75c to .75c. When they obtain the resultant velocity they can then calculate the momentum of the other body. According to Einstein, the addition results in .96c. And the momentum is, $p = mv/R$, is 3.428 gr cm.

Now the momentum of each body at .75 c is 1.134gr cm. Adding the two together gives us 2.268gr cm. But Einstein's result is 3.428gr cm. Obviously, the system is closed and momentum is not conserved, so Einstein has erred.

We can check this by converting the v (.75c) to its Newtonian value V, add the Newtonian values, and then take the momentum as p = mV:

V =.75c/R = 1.134 c. Adding the Vs gives us 2.268 c.

So the momentum at passing is p = 1gr x 2.268 c. We see this matches the total of the separate momenta during approach. In short, momentum is conserved.

Note, only one gram is used because it is assumed the other is at rest. If both grams are in motion then each has a momentum, p = mV = 1.134 gr cm.

Adding these two gives 2.268 gr cm.

Another way of calculating it is to take the combined Newtonian velocity of 2.268 c, reduce it to the relative velocity and calculate the momentum of it.

V x R* = v. So v = 2.268 **x** .4034415 = .915c. (where c = 1)

And m **x** .915c/R = 2.268c gr cm (m =1)

Here we see the addition of .75 c and .75 c is .915 c.

And the momentum of .915 c is 2.268c.

R is obtainable in terms of V:

$$R = \frac{1}{\text{sqrt}(1 + V^2)}$$ (where V = Newtonian velocity/ c)

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ABERRATION

If one assumes a receding observation vector, say 45º (0º is directly away from the source.) to the incoming rays from a distant source, and, using Einstein's equation, plots the frequency against a constantly increasing velocity, they will find there is a velocity (between .710 c and .711 c) that is a *turning point* where the frequency *reverses* from decrease to increase. Thus, we have an observer retreating from a light source with the frequency increasing instead of decreasing with increasing velocity. Obviously, there is error here.

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$$\nu' = \nu \frac{1 - \cos\phi \cdot v/c}{\sqrt{1 - v^2/c^2}}.$$ [9]

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"This is Doppler's principle
for any velocities whatever." .

------ Einstein

Obviously, this equation is wrong. The correct equation is:

$$\nu' = \nu \frac{\sqrt{1 - v^2/c^2}}{1 + \cos \varphi \, v}$$

Note, this equation – when $\varphi = 90^o$ – gives the same result as the equation for time dilation:

$$t' = t \sqrt{1 - v^2/c^2}$$

Thus, the transverse Doppler effect is often mistaken for time dilation. In other words, Doppler time – which is the true time rate – is often mistaken for, and considered to be, Einstein's time dilation which is invalid.

LONGITUDINAL LENGTH CONTRACTION

In this passage, Einstein states the condition correctly. That is he keeps repeating that the parameter of contraction is an observation from the stationary coordinate system. But the readers have chosen to interpret this as the contraction taking place in the *observed* coordinate system. Obviously it is Einstein's writing elsewhere that engenders that error.

Perhaps a quote from Einstein's paper will substantiate the above.[10] (emphasis italicized)

"A rigid body which, measured in a state of rest, has the form of a sphere, therefore has in a state of motion--*viewed from the stationary system*--the form of an ellipsoid.

Thus, whereas the Y and Z dimensions of the sphere (and therefore of every rigid body of no matter what form) do not

appear modified by the motion, *the X dimension appears* shortened in the

ratio $1 : \sqrt{1 - v^2/c^2}$ ".

Note, he does not say, "... the X dimension IS shortened..."

but "appears" shortened. Elsewhere he states:[11]

"For v=c all moving objects--viewed from the ``stationary"

system--shrivel up into plane figures."

That seems clear enough, except he could have said again,

"appear shriveled up". Just to say "... all moving objects ...

shrivel up" connotes that they actually do.

Observe: quote:
(emphasis underlined)

> “I PLACE a metre-rod in the x'-axis of k' in such a manner that one end (the beginning) coincides with the point $x' = 0$, whilst the other end (the end of the rod) coincides with the point $x' = 1$. What is the length of the metre-rod relatively to the system *K?* In order to learn *I*

this, we need only ask where the beginning of the rod and the end of the rod lie with respect to *K* at a particular time *t* of the system *K*. By means of the first equation of the Lorentz transformation the values of these two points at the time $t = 0$ can be shown to be

$$x_{(\text{beginning of rod})} = 0 \sqrt{1 - \frac{v^2}{c^2}}$$

$$x_{(\text{end of rod})} = 1 \cdot \sqrt{1 - \frac{v^2}{c^2}},$$

the distance between the points being

$$\sqrt{1 - \frac{v^2}{c^2}}.$$

But the metre-rod is moving with the velocity *v* relative to *K*. It therefore follows that the length of a rigid metre-rod moving in the direction of its length with a velocity v is

$$\sqrt{1 - v^2/c^2}$$

of a metre. The rigid rod is thus shorter when in motion than when at rest, and the more quickly it is moving, the shorter is the rod. For the velocity v = 0 we should have

$$\sqrt{1 - v^2/c^2} = 0$$

(Error. Should be = 1)

and for still greater velocities the square-root becomes imaginary. From this we conclude that in the theory of relativity the velocity *c* plays the part of a limiting velocity, which can neither be reached nor exceeded by any real body.

2

Of course this feature of the velocity *c* as a limiting velocity also clearly follows from the equations of the Lorentz transformation, for these become meaningless if we choose values of v greater than *c*.

3

If, on the contrary, we had considered a metre-rod at rest in the x-axis with respect to *K,* then we should have found that the length of the rod as judged from *K′* would have been

$$\sqrt{1 - v^2/c^2}$$

This is quite in accordance with the principle of relativity which forms the basis of our considerations

4

A priori it is quite clear that we must be able to learn something about the physical behaviour of measuring-rods and clocks from the equations of transformation, for the magnitudes *x, y, z, t,* are nothing more nor less than the results of measurements obtainable by means of measuring-rods and clocks”

(This statement is not true since the measurements are made by the use of light (the Lorentz transformations) not rods and clocks – and the rod does not shorten.)

.

“If we had based our considerations on the Galilei transformations we should not have obtained a contraction of the rod as a

<u>consequence of its motion.</u>

5

Let us now consider a seconds-clock which is permanently situated at the origin ($x' = 0$) of K'. $t' = 0$ and $t' = 1$ are two successive ticks of this clock. The first and fourth equations of the Lorentz transformation give for these two ticks
:

$$\mathbf{t=0}$$

and $$\mathbf{t'} = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$

As judged from *K,* the clock is moving with the velocity v; 6
as judged from this reference-body, the time which elapses between two strokes of the clock is not one second, but

$$\frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$

seconds, *i.e.* a somewhat larger time. As a consequence of its motion the clock goes more slowly than when at rest. Here also the velocity *c* plays the part of an unattainable limiting velocity"

(end of quote)

Einstein failed to see that the Lorentz transformations transformed the observation <u>only</u> and not the parameters in the moving system,

Had he depended on mathematics less and – and logic more, he might have considered that if the observed system had nine other coordinate systems (at different relative velocities) observing it, then the system would have (according to his assertion that changes actually occurred in the observed system) ten different sets of parameters all operating simultaneously. The rod would have ten different lengths, the clock would click at ten different rates, and the mass point would have ten different masses – and the proper parameters would be out the window – a reductio ad absurdum.

Note, according to the principle of relativity (which Einstein refers to above) the observed system can be considered either as in motion or at rest. The result is the same. The observations are observations only.

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The dictionaries define a priori as:

assumed: known or assumed without reference to experience.

and

self evident: intuitively obvious.

(Who of us has not fallen victim to a priori at one time or another?)

SUMMATION

The substance of Einstein's error is that he relied too much on mathematics and was short on logic. He thereby misinterpreted the mathematics and assumed that the observed parameters actually existed in the other (moving) coordinate system.
Had he stopped to think that through, he would not have made that error.

As a result, we now see that in the moving system mass is constant, longitudinal length does not vary, time runs at an unchanged rate, and velocity has infinity as a limit.

For the stationary observer, momentum and kinetic energy *are* attributes of the moving system because these parameters are created by motion.

Correction of these errors removes the special theory as the operative paradigm.
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ADDENDUM

Note, The Newtonian for energy is ½ mv^2 , i.e., mv^2 is modified by a fraction which is absent at the speed of light where energy for e.m.r. is E = mc2. We note that kinetic energy for ponderous mass is of a different genre than kinetic energy for radiation.

In this work, the posit is that the denominator $(R+R^2)$ of the fraction $1/R+R^2)$ starts at 2 and gradually decreases as v approaches c. In other words the fraction is a variable function with a range of
½ at v = 0 and approaching infinity as v —> c as a limit. .

For example at ,96 c, the fraction is 1/.3584 --- which is $1/(R+R^2)$.

And we have that fraction times v^2. Or $1/(R+R^2) = n$, and we have $E = mv^2n$,

maintaining the Newtonian form, $E = mv^2 \frac{1}{(R+R^2)}$. Since m is invariable the fraction modifies v^2.

.
Note that at low velocities the fraction closely approximates ½

There is more accomplished here than just a demonstration that super velocities are possible. c

Special Relativity is put in perspective. The fact is, Newtonian velocities are proper velocities --- and like all proper parameters are real and existent. The altered parameters of relativity are *measurements* *only* and exist only as observation in the equipment of the observed. How can a distorted observation affect a genuine existing event? It can't. But it can claim falsely that such events can occur. It can also make claims that disrupt our intuitive concepts.

For example, mass increase is a distortion. Mass does *not* increase with velocity. The increase in particle mass in accelerators is due to the particles absorbing mass from the impelling radiation.

Excess momentum and kinetic energy are distortions. This is explained by the present theory. Momentum and kinetic energy are parameters of the unobserved Newtonian velocity which are observed in the presence of the lower observed relativistic velocities.

Time dilation is a distortion. Relativity theory does not explain just *how* velocity alters time, i.e., there is no physical description of how this occurs. In addition it is discredited by empiricism.

The composition of velocities theorem is a distortion in as much as it does not conserve momentum.

All these are corrected by recognizing Newtonian velocity.

In contrast to relativity, which draws its conclusions from mathematics, the present theory deals solely in reality and shows cause for its conclusions.--- In so doing it dispenses with the distortions.

All this leads to the conclusion that super c velocities as described herein are valid.

These events reduce the position of the special theory of relativity so that it is no longer the leading paradigm but is instead an adjunct to the Newtonian paradigm which once again reigns supreme.

OBTAINING V FROM v

Where c = 1, the equations for E are

$$E = \frac{v^2}{(R + R^2)} mc^2$$

and

$$E = V^2 \frac{R^2}{(R + R^2)} mc^2$$

The mc^2 s cancel out – and putting the rest of the equations in equality, we have

$$\frac{v^2}{(R + R^2)} = V^2 \frac{R^2}{(R + R^2)}$$

Thus

$$\frac{v^2}{\quad} = V^2 \frac{R^2}{(R + R^2)} \quad (R + R^2)$$

The $(R + R^2)$ s cancel, and we have

$$v^2 = V^2 \; R^2$$

Taking the square root, we have

$$v = V R \quad \text{or} \quad \frac{v}{R} = V$$

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