

Special Theory of Relativity based on fraudulent science?

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Abstract – This article makes it highly likely that the question mark in the title has to be an exclamation mark.

Introduction

Chapter 1 shows that Einstein's mistakes in his mathematics in the Special Theory of Relativity (STR) are so extremely obvious that one can hardly believe that he didn't make them purposely.

Chapter 2 shows that the scientific establishment changed, after his death, Einstein's hypothesis regarding the speed of light fundamentally, but that it maintained, uncriticised, the result of his theory.

1. Einstein's unpardonable mistakes

If Einstein would not have made these mistakes he would not have succeeded in presenting his consistent transformation formulas. 'Consistent' regarding the following property: after having transformed the coordinates x and t from system K to system k (k moves with velocity v relative to K), the original coordinates in K are found again applying the same formulas with the appropriate variables from k to K . These mistakes will be shown in the Italic texts copied from ref [1], being a correct translation of ref [2].

Einstein defined the velocity v as follows:

Now to the origin of one of the two systems (k) let a constant velocity v be imparted in the direction of increasing x of the other stationary system (K), and let this velocity be communicated to the axes of the co-ordinates, the relevant measuring rod....

At the start of § 3 in his article, he writes:

If we place $x' = x - vt$, it is clear that a point at rest in the system k must have a system of values x', y, z , independent of time.

This is a contradiction in itself, because $x' = x - vt$ shows that x' is a function of time. Unless x would be $x_0 + vt$, with x_0 independent of time! So the question is: what has x been meant to be?

To answer this question the final result of the STR has to be considered, especially: $\xi = \beta(x - vt)$.

Suppose $x = x_0 + vt$, then ξ would be βx_0 . This has, for sure, not been the purpose of the STR.

The transformation $\xi = \beta(x - vt)$ can, given the relation $x' = x - vt$, be written as $\xi = \beta x'$. This result is in accordance with the purpose of the STR, meant to show that, due to the velocity v between k and K , the projection of x in k is not just x' , but an enhanced value $\beta x'$. Given the fact that $\beta = 1/\sqrt{1-v^2/c^2}$, this projection is only x' if v would be zero!

Conclusion: Einstein's description has to be ignored, except the definition $x' = x - vt$, with $x \neq x_0 + vt$.

In the following text of Einstein it is found that he chose $x = ct$, because he introduces there $x' = ct - vt$.

It will be shown that this has been meant as the first step in Einstein's manipulative mathematics

Since τ is a linear function, it follows from these equations that

$$\tau = a \{t - vx'/c^2\}$$

where a is a function $\varphi(v)$ at present unknown, and where for brevity it is assumed that at the origin of k , $\tau=0$, when $t=0$.

With the help of this result we easily determine the quantities ξ , η , ζ by expressing in equations that light (as required by the principle of the constancy of the velocity of light, in combination with the principle of relativity) is also propagated with velocity c when measured in the moving system. For a ray of light emitted at the time $t = 0$ in the direction of the increasing ξ

$$\xi = c\tau \text{ or } \zeta = ac \{t - vx'/c^2\}$$

But the ray moves relatively to the initial point of k , when measured in the stationary system, with the velocity $c-v$, so that

$$x'/(c-v) = t.$$

If we insert this value of t in the equation for ξ , we obtain

$$\xi = ac^2x' / (c^2 - v^2)$$

Hereafter it will be shown that Einstein has made this exceptional transformation on purpose.

In an analogous manner we find, by considering rays moving along the two other axes, that

$$\eta = \tau = ac \{t - vx' / (c^2 - v^2)\}$$

when

$$y/\sqrt{c^2 - v^2} = t, \quad x' = 0.$$

Thus

$$\eta = acy/\sqrt{c^2 - v^2} \quad \text{and} \quad \zeta = acz/\sqrt{c^2 - v^2}$$

Here Einstein introduces, without any explanation, a velocity of light $\sqrt{c^2 - v^2}$ along the y - and z -axis.

Such a velocity is contrary to his own hypothesis and thus extremely unscientific.

He continues with:

Substituting for x' its value, we obtain

$$\tau = \varphi(v)\beta(t - vx/c^2)$$

$$\xi = \varphi(v)\beta(x - vt)$$

$$\eta = \varphi(v)y$$

$$\zeta = \varphi(v)z$$

where

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

and $\varphi(v)$ is an as yet unknown function of v .

Comment: Einstein should have presented, given the variables above:

$$\tau = a\beta^2(t - vx/c^2)$$

$$\xi = a\beta^2(x - vt)$$

$$\eta = a\beta y$$

$$\zeta = a\beta z$$

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

with a to read as $a(v)$. *

The statement: "Substituting for x' its value,.." means: only in the equations $\tau = a\{t - vx'/(c^2 - v^2)\}$ and $\xi = ac^2x'/(c^2 - v^2)$. The questions are which value: $x'=x - vt$ or $x' = ct - vt$ and in which equation? Obviously $x'=x - vt$ has been applied in $t - vx'/(c^2 - v^2)$, because the result is only then $\tau = a\beta^2(t - vx/c^2)$. This is contrary to what he did above when he replaced τ in the equation $\xi = c\tau$, where he used $x' = ct - vt$.

This is the fourth step in his manipulative mathematics.

Having found $\tau = a\beta^2(t - vx/c^2)$, one would argue that, because $\xi = c\tau$, ξ simply equals $c \cdot a\beta^2(t - vx/c^2)$. However Einstein presents $\xi = \varphi(v)\beta(x - vt)$. The question thus is: how did he create $\xi = \varphi(v)\beta(x - vt)$? The first part of the answer has just been presented: he applied initially $t = x'/(c - v)$ in $\xi = c\tau$ in order to obtain $\xi = ac^2x'/(c^2 - v^2)$. This is the above mentioned "exceptional transformation on purpose". Given the definition of β , this ξ can be written as $a\beta^2x'$. The second part of the answer is that he now applied $x' = x - vt$, so instead of $x' = ct - vt$, in order to obtain $\xi = a\beta^2(x - vt)$.

Conclusion: Einstein only once used the exceptional definition $x = ct$. Outside of it he used x as x .

Such a manipulation should be qualified as fraud, if not, then as shocking unscientific behaviour.

The crucial question is: why did, and still does, the scientific establishment not observe such manipulations? Even worse: why did and does it make unpardonable mistakes on top of these?

* The appendix shows that Einstein could have prevented this apparent incorrectness, $a\beta^2$ versus $\varphi(v)\beta$, by simply following the mathematics as presented in this article.

2. Scientific establishment's unpardonable mistakes

Einstein's postulate about the speed of light sounds:

“Any ray of light moves in the ‘stationary’ system of co-ordinates with the determined velocity c , whether the ray be emitted by a stationary or by a moving body.”

The fundamental error in this postulate is that he effectively reintroduced, with his ‘stationary’ system, the ether model, most likely without noticing it, because he rejected the ether model himself in the same article. It is generally accepted that an absolute stationary system does not exist. As a result only a stationary system w.r.t. another system can exist. As a consequence that other system is also stationary w.r.t. the first mentioned one. Therefore the introduction of a singly ‘stationary’ system is senseless, whether it is put in quotes or not. Einstein even defined it as **the** ‘stationary’ system:

“Let us take a system of co-ordinates in which the equations of Newtonian mechanics hold good². In order to render our presentation more precise and to distinguish this system of co-ordinates verbally from others which will be introduced hereafter, we call it **the** ‘stationary’ system. (Note 2: i.e. to the first approximation.)”

The scientific establishment seemingly realized this mistake too. Instead of combining this mistake with Einstein's mathematical manipulations and as a result reject the STR, it added another mistake to the story:

It changed Einstein's wrong postulate into another, even more unphysical, postulate, by assuming that the velocity of light in vacuum is c relative to whatever reference.

It is of course allowed to create whatever postulate, however it is fully unscientific to change the postulate of a particular theory fundamentally, but still maintain the result of that theory, without creating a new theory based on that new postulate.

If such an unscientific act is also more or less carried out sneakily, given the fact that there exist no reference explaining this fundamental change of Einstein's hypothesis, this very much looks like fraud.

Conclusions

1. Einstein's mathematical errors force us to conclude that he should not be regarded as the widespread praised most intelligent scientist ever. He looks much more like a physicist who has, developing his Special Theory of Relativity, practiced physics in a shocking unscientific manner. One can hardly avoid to qualify it as fraudulent science.
2. The scientific establishment has made, about halfway the previous century, an unpardonable mistake by not exposing openly Einstein's unscientific behaviour, regarding his Special Theory of Relativity, but even worse by fundamentally altering Einstein's postulate regarding the speed light and still retaining the same result, without presenting a new theory leading to that same result. Such behaviour also looks much like fraudulent scientific behaviour.
3. The influence of Einstein's unscientific behaviour on the health of physical science is dramatic: all modern physical models and phenomena that are, more or less, based on his Special Theory of Relativity, have to be rejected too. For example: the phenomena space-time, black hole and last but not least: $E = mc^2$!

References

- [1] Translated original article of Einstein:
On the electrodynamics of moving bodies, By A. Einstein, June 30, 1905
<http://www.fourmilab.ch/etexts/einstein/specrel/www/>
- [2] Original article of Einstein in the German language
http://users.physik.fu-berlin.de/~kleinert/files/1905_17_891-921.pdf

Appendix

1. Consistency of transformation formulas

Transformation formulas 'forth':

$$\tau = \beta(t - vx/c^2) \qquad \xi = \beta(x - vt)$$

To transform back:

$$\begin{array}{lll} \text{Change on the left side of the equal sign:} & \tau \rightarrow t & \xi \rightarrow x \\ \text{Change on the right side of the equal sign:} & t \rightarrow \tau & x \rightarrow \xi \qquad v \rightarrow -v \end{array}$$

Transformation formulas 'back':

$$t = \beta(\tau + v\xi/c^2) \qquad x = \beta(\xi + v\tau)$$

Apply the τ and ξ of the transformation formulas 'forth':

$$\begin{array}{ll} t = \beta\{\beta(t - vx/c^2) + v\beta(x - vt)/c^2\} & x = \beta\{\beta(x - vt) + v\beta(t - vx/c^2)\} \\ t = \beta^2\{t - vx/c^2 + v(x - vt)/c^2\} & x = \beta^2\{x - vt + v(t - vx/c^2)\} \\ t = \beta^2\{t - v^2t/c^2\} & x = \beta^2\{x - v^2x/c^2\} \\ t = \beta^2\{1 - v^2/c^2\} & x = \beta^2\{1 - v^2/c^2\} \\ t = \beta^2t(c^2 - v^2)/c^2 & x = \beta^2x(c^2 - v^2)/c^2 \end{array}$$

$$\beta^2 = 1/(1 - v^2/c^2) = c^2/(c^2 - v^2)$$

$$\text{So: } t = t \quad \text{q.e.d.} \qquad x = x \quad \text{q.e.d.}$$

2. The apparent incorrectness of $a\beta^2$ versus $\varphi(v)\beta$

Suppose the transformation formulas 'forth' would be taken in conformity with Einstein's **manipulative** mathematics:

$$\tau = a(v)\beta^2(t - vx/c^2) \qquad \xi = a(v)\beta^2(\xi + v\tau),$$

then the final results of the transformation formulas 'back' would be:

$$t = a(v)a(-v)\beta^4t(c^2 - v^2)/c^2 \qquad x = a(v)a(-v)\beta^4x(c^2 - v^2)/c^2$$

So $a(v)a(-v)$ has to be β^2 in order to obtain $t = t$ and $x = x$.

The most obvious solution is: $a(v)=a(-v)=\beta^{-1}$.

In that case the original definition of $a(v)$ in: " $\tau = a \{t - vx'/(c^2 - v^2)\}$ where a is a function $\varphi(v)$ "

would lead to $\tau = \beta^{-1}\{t - vx'/(c^2 - v^2)\}$. For $x' = x - vt$ the result is $\tau = \beta(t - vx/c^2)$.

3. Physics versus mathematics

These consistent transformation formulas, obtained by manipulative mathematics, might easily lead to the conclusion that the STR is a correct theory. However, doing so Einstein adapted physics to mathematics.

Each scientist in physics has the moral responsibility to try to adapt mathematics to physics.