Author’s response to referees on article 041808A

Dear sir,

I have read your referees’ report carefully and it seems to me that your referees did not give a careful look on my article 041808A and their report is biased to the special theory of relativity as other so called relativity experts are. The referees have pointed out some flaws which I like to clear out.

The First Report: Friday, April 25, 2008

1) At first your referee disagreed to the fact that special theory of relativity is based on the three conclusions: 1. Longitudinal length contraction 2. Time dilation and 3. Constancy of the speed of light. According to him, the third one is the base and the other two are its consequences. I like to ask your referee whether the constancy of the speed of light is first proposed in special theory of relativity. If he heard the name of Oliver Heaviside and read his electrodynamics he will at once find that the invariance of the speed of light can be explained classically and without any reference to special theory of relativity. Einstein himself confessed that after a long thought it came to his mind that time is not absolute and consequently longitudinal length also. I like to ask your referee if longitudinal length contraction and time dilation are not the pillars of special theory of relativity why did the then physicists, including Heaviside, not point out against Einstein.
2) In the second point, I think, your referee wanted to know the derivation on the new set of transformation equations. I have derived the equations considering a spherical wave front as Lorentz did. But the differences in my derivation are
    a. constancy of the speed of light
    b. absoluteness of longitudinal length
    c. absoluteness of time and
    d. space-time interdependence.

   Considering these one can easily derive the new set of transformation equations.
3) Equation (2) does not indicate that time is not absolute, rather it indicates, unlike Newtonian relativity, that time is a function of both time and space.
4) Equations (3) onwards are easily derivable from equations (1) and (2) as derived for special theory of relativity. If your referee follow any

book regarding the derivation of Lorentz transformation equations he will definitely be able to derive the new set of transformation equations. For convenience a sample proof of the invariance of Maxwell's Equations are as follows:

Maxwell's equations

1. $\nabla.\mathbf{E} = \rho/ \varepsilon_0$
2. $\nabla.\mathbf{B} = 0$
3. $\nabla\times\mathbf{E} = -\partial\mathbf{B}/\partial t$
4. $\nabla\times\mathbf{B} = \mu_0 (\mathbf{j} + \varepsilon_0 \partial\mathbf{E}/\partial t)$

If I consider the transformation equations

$$x' = x - vt \tag{1}$$

$$y' = y \tag{2}$$

$$z' = z \tag{3}$$

$$t' = t - vx/c^2 \tag{4}$$

$$E_x' = \gamma E_x \tag{5}$$

$$E_y' = \gamma (E_y - v B_z) \tag{6}$$

$$E_z' = \gamma (E_z + v B_y) \tag{7}$$

$$B_x' = \gamma B_x \tag{8}$$

$$B_y' = \gamma (B_y + v E_z /c^2) \tag{9}$$

$$B_z' = \gamma (B_z - v E_y /c^2) \tag{10}$$

$$\rho' = \gamma (\rho - v j_x/c^2) \tag{11}$$

$$j_x' = \gamma (j_x - v\rho) \tag{12}$$

We find,

$\partial/\partial x = \partial/\partial x' - (v /c^2)\partial/\partial t'$ and $\partial/\partial x' = \partial/\partial x + (v /c^2)\partial/\partial t$

$\partial/\partial y = \partial/\partial y'$ and $\partial/\partial y' = \partial/\partial y$

$\partial/\partial z = \partial/\partial z'$ and $\partial/\partial z' = \partial/\partial z$
$\partial/\partial t = \partial/\partial t' - v\,\partial/\partial x'$ and $\partial/\partial t' = \partial/\partial t + v\,\partial/\partial x$

Now consider the equation 1.
$\partial E_x/\partial x + \partial E_y/\partial y + \partial E_z/\partial z = \rho/\varepsilon_0$
$\Rightarrow \partial E_x/\partial x + (v/c^2)\partial E_x/\partial t + \partial E_y/\partial y + \partial E_z/\partial z = \rho/\varepsilon_0 + (v/c^2)\partial E_x/\partial t$
$\Rightarrow \partial E_x/\partial x' + \partial E_y/\partial y + \partial E_z/\partial z = \rho/\varepsilon_0 + (v\mu_0\varepsilon_0)\partial E_x/\partial t$
$\Rightarrow \partial E_x/\partial x' + \partial E_y/\partial y + \partial E_z/\partial z = \rho/\varepsilon_0 + v(\partial B_z/\partial y - v\partial B_y/\partial z - \mu_0 j_x)$
$\Rightarrow \partial E_x/\partial x' + \partial/\partial y\,[E_y - v B_z] + \partial/\partial z\,[E_z + v B_y] = \rho/\varepsilon_0 - v\mu_0 j_x$
$\Rightarrow \partial E_x/\partial x' + \partial/\partial y'\,[E_y - v B_z] + \partial/\partial z'\,[E_z + v B_y] = [\rho - (v/c^2) j_x]/\varepsilon_0$
(multiplying both sides by γ)
$\Rightarrow \partial E_x'/\partial x' + \partial E_y'/\partial y' + \partial E_z'/\partial z' = \rho'/\varepsilon_0$
Hence, equation 1. is invariant under these transformation equations.

Now consider the equation 2.
$\partial B_x/\partial x + \partial B_y/\partial y + \partial B_z/\partial z = 0$
$\Rightarrow \partial B_x/\partial x + (v/c^2)\partial B_x/\partial t + \partial B_y/\partial y + \partial B_z/\partial z = (v/c^2)\partial B_x/\partial t$
$\Rightarrow \partial B_x/\partial x' + \partial B_y/\partial y + \partial B_z/\partial z = v(\partial E_y/\partial z - v\partial E_z/\partial y)/c^2$
$\Rightarrow \partial B_x/\partial x' + \partial/\partial y\,[B_y + (v/c^2) E_z] + \partial/\partial z\,[B_z - (v/c^2) E_y] = 0$
(multiplying both sides by γ)
$\Rightarrow \partial B_x'/\partial x' + \partial B_y'/\partial y' + \partial B_z'/\partial z' = 0$
Hence, equation 2. is invariant under these transformation equations.

Now consider one component of equation 3. given by,
$\partial E_x/\partial z - \partial E_z/\partial x = -\partial B_y/\partial t$
$\Rightarrow \partial E_x/\partial z' - \partial E_z/\partial x' + (v/c^2)\partial E_z/\partial t' = -\partial B_y/\partial t' + v\partial B_y/\partial x'$
$\Rightarrow \partial E_x/\partial z' - \partial/\partial x'[E_z + v B_y] = -\partial/\partial t'[B_y + v E_z/c^2]$
(multiplying both sides by γ)
$\Rightarrow \partial E_x'/\partial z' - \partial E_z'/\partial x' = -\partial B_y'/\partial t'$
It can similarly be shown that other components of the third Maxwell's equation are also invariant under these transformation equations.

Now consider one component of equation 4. given by,
$\partial B_z/\partial y - \partial B_y/\partial z = \mu_0\,(j_x + \varepsilon_0\,\partial E_x/\partial t)$
$\Rightarrow \partial B_z/\partial y - \partial B_y/\partial z + (v\mu_0\varepsilon_0)\,\partial E_x/\partial x = \mu_0 j_x + \mu_0\varepsilon_0\,(\partial E_x/\partial t + v\partial E_x/\partial x)$
$\Rightarrow \partial B_z/\partial y - \partial B_y/\partial z + (v/c^2)(\rho/\varepsilon_0 - \partial E_y/\partial y - \partial E_z/\partial z) = \mu_0 j_x + (\partial E_x/\partial t + v\partial E_x/\partial x)/c^2$

$\Rightarrow \partial/\partial y[B_z-(v/c^2)E_y]-\partial/\partial z[B_y+(v/c^2)E_z]=\mu_0 j_x-(v/c^2)(\rho/\varepsilon_0)+(\partial E_x'/\partial t')/c^2$

$\Rightarrow \partial B_z'/\partial y' - \partial B_y'/\partial z' = \mu_0[(j_x - v\rho) + \varepsilon_0 \partial E_x'/\partial t']$

(multiplying both sides by γ)

$\Rightarrow \partial B_z'/\partial y' - \partial B_y'/\partial z' = \mu_0(j_x' + \varepsilon_0 \partial E_x'/\partial t')$

It can similarly be shown that other components of the fourth Maxwell's equation are also invariant under these transformation equations.

5) My new set of transformation equations clearly depicts the absoluteness of space, time and the speed of light, which your referee might have overlooked.
6) As special theory of relativity redefined mass, momentum and other quantities in different fields is it impossible for the theories which are inconsistent to my theory (if you grant it as correct as I think) to be modified?
7) If your referee really thinks that I am wrong, I request him to kindly justify the violations 1, 2(a), 2(b), 3 and 4 in the light of special theory of relativity. I think, he can't and that's why he avoided criticizing the violation part.

The Second Report: Tuesday, April 29, 2008.

Since the referee did not read the paper carefully and his report did not clearly mention any objection to my paper, I think it is needless to reply to it.

The Third Report: Sunday, May 4, 2008

A) I prepared my paper without contradicting any of Einstein's two postulates and still managed to find the relativistic transformation equations clarifying absolute length, time and the speed of light. Furthermore relativistic velocity addition law, relativistic mass variation, the famous mass-energy relationship can easily be explained even by this new set of transformation equations. Hence, the two postulates of Einstein are the necessary conditions for special theory of relativity but not the sufficient conditions.

B) VIOLATION: I am not clear what your referee has wanted to mean about the violations. I will be very happy if he clarifies his points clearly. In fact the violation section is the most important section in my paper and if your referees can satisfy me with their logic that my arguments are wrong I will definitely confess.

C) MODIFICATION: If you consider two equations given by,
$r^2 = c^2t^2$ where $r^2 = x^2 + y^2 + z^2$ and
$r'^2 = c^2t'^2$ where $r'^2 = x'^2 + y'^2 + z'^2$ and apply the conditions for absoluteness of length, time and the speed of light, you will definitely get the relativistic transformation equations (1) and (2) in the paper.
For the next part,
$r' = ct'$
$\Rightarrow r - vt = c(t - vr/c^2)$
$\Rightarrow r - vt = ct - vr/c$
$\Rightarrow r\,(1 + v/c) = ct\,(1 + v/c)$
$\Rightarrow r = ct$

I think it is much fair and clear enough for you to understand that there is no inconsistency in the transformation equations.

The Fourth Report: Monday, May 5, 2008

A) I prepared my paper without contradicting any of Einstein's two postulates and still managed to find the relativistic transformation equations clarifying absolute length, time and the speed of light. Furthermore relativistic velocity addition law, relativistic mass variation, the famous mass-energy relationship can easily be explained even by this new set of transformation equations. Hence, the two postulates of Einstein are the necessary conditions for special theory of relativity but not the sufficient conditions.

B) In Newtonian relativity space is dependent on both space and time. Is space relative in Newtonian mechanics? In the mentioned transformation equations for space and time space and time are interrelated only due to the finiteness of the ultimate achievable speed i.e. the speed of light.

C) It is very laborious for me to give all the derivations of the transformation equations I have mentioned. If anyone tries a bit it is not difficult to derive them. From my point of view if you require the derivation of any particular equation I can give u as I have given the proof of the invariance of Maxwell's equations under these transformation equations.

D) If you read the violations section and then the analysis of violations you will definitely find your requirement. You should also read the experimental evidence for the existence of ether. If you can put forward such a theory I will definitely inform you how to modify it.

Unless I know the problem clearly how can I give you the exact solution!

The Fifth Report: Tuesday, May 6, 2008

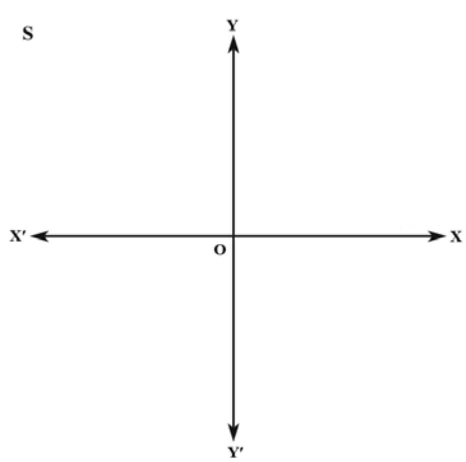
Now come to the reply to the fifth report.
It is quite surprising to me that your referees did not read my paper carefully from top to bottom. In my paper (page-5 and page-6) in the modification part through two figures (fig-5 and fig-6) I have clearly shown that orthogonal Cartesian coordinate axes does not remain orthogonal under relative motion. For convenience I have put down that part below.

Modifications: Considering absolute space, time and their interdependence, the relativistic transformation equations can be derived in the usual way as Lorentz transformation equations were derived. One can easily verify the new transformation equations as given below.

$\mathbf{r}' = \mathbf{r} - \mathbf{v}t$ (1).

$t' = t - \mathbf{v}.\mathbf{r}/c^2$ (2).

I have represented the transformation equations in vector notation to clear all the jargons of direction. **The equation (1) informs that the orthogonal coordinate system does not remain orthogonal under relative motion (Fig- 5) and experimental results confirm that the shape of any object is distorted under relative motion. Hence, as the transverse length is absolute, the unit vector along the direction perpendicular to the relative motion should also change which lead to a transverse length variation ((Fig- 6).** To make it clearer, consider that in the S frame a light ray emerging from O (Fig- 6) moves along Y-axis and reaches B. To an observer in the S′ frame (moving with a velocity v with respect to S) the



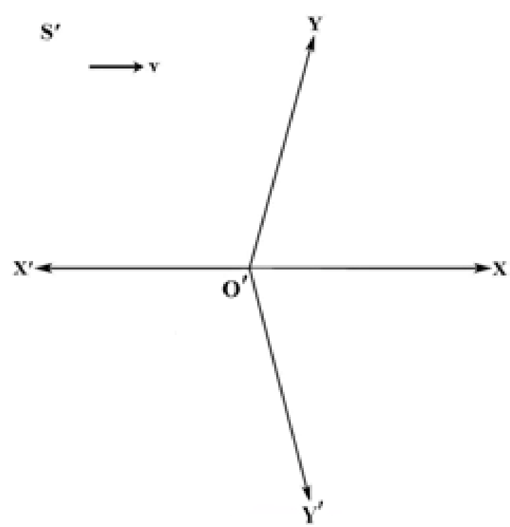


Fig- 5: The first part shows the orthogonal coordinate system of S frame at rest and the second one depicts the non-orthogonal coordinate system S′ (moving with a velocity v with respect to S along common X-axis) observed from S.

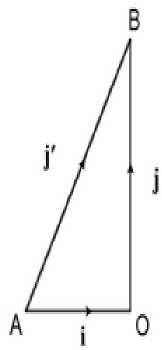


Fig-6: Relativistic variation of the unit vector along transverse direction

ray has traveled the distance AB. For the sake of uniqueness of the light path the length AB should be equal to OB, which automatically lead to a transverse length variation.

Now come to the referee's part of derivation. From the above discussion it is clear that transverse axes are not parallel under relative motion and the magnitudes of the unit vectors are different. The equations in page-2 given by,

$y' = y$ (2)

$z' = z$ (3)

are valid only by magnitude and not as vectors.

When you try to find the equations treating as vectors you need to follow equation (1) which will give you different unit vectors for different frames. For convenience I am giving the derivation below.

$\mathbf{r'} = \mathbf{r} - \mathbf{v}t$

Then for y-component,

$\mathbf{y'} = \mathbf{y} - \mathbf{v}t$

$\Rightarrow \mathbf{j'}\, y' = \mathbf{j}\, y - \mathbf{i}\, vt$ (a)

To find the relation between $\mathbf{j'}$ and $\mathbf{j}$ consider the relativistic velocity transformation equation (equation (3), page 6) given by,

$\mathbf{u'} = (\mathbf{u} - \mathbf{v})/(1 - \mathbf{u}.\mathbf{v}/c^2)$

For velocity only along y-axis the above equation becomes,

$\mathbf{j'}\, u' = (\mathbf{j}\, u - \mathbf{i}\, v)$

Since the speed of light is invariant, for u = c, u′ = c. Then,

$\Rightarrow \mathbf{j'}\, c = (\mathbf{j}\, c - \mathbf{i}\, v)$

$\Rightarrow \mathbf{j'} = (\mathbf{j} - \mathbf{i}\, v/c)$

Then from equation (a)

$(\mathbf{j} - \mathbf{i}\, v/c)\, y' = \mathbf{j}\, y - \mathbf{i}\, vt$

Now comparing both sides one can definitely find $y' = y$ in magnitude of course. In figure-6 above if you consider AB = c and AO = v you will find OB = $\gamma = \sqrt{(1 - v^2/c^2)}$ which is the incremental factor of transverse length. Now you referee can easily find the validation of my new set of transformation equations from his approach of derivation mentioned in his reply A). Again I like to thank you and especially your referee for pointing out very important question on my paper, which I should clarify in the paper itself but to save space and avoid mathematical deductions I did not. One question I like to ask your referee whether he is convinced to the violations (at least physically without going its mathematical part) I have shown in my paper or not because this is the main part of the paper, which is the base to modify the special theory of relativity. Thank you once again to give me a chance to explain my point of view.