What is the Theory of Relativity?

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To the institutional physicists, the theory of relativity is a sacred subject attracting millions of dollars for their laboratories and the profession. Recognized people in this field enjoy the privilege of doing experiments on gravitational waves, on the nature of space-time curvature etc., at the cost of fabulous money. Institutional journals do not allow printing even a single phrase questioning the theory. Science-reporters and common people, too, we see, carry on exciting discussions on the statements of Albert Einstein and his followers with divine reverence. Unfortunately, in our analysis of the theory, we see that the theory is metaphysical and mystic, and there is not a single experiment to prove the validity of the theory. Moreover, it could be shown that all electrodynamic and gravitational phenomena explained by the theory of relativity mystically and metaphysically could readily be explained from the consideration of classical physics rationally as well as simply.

A. Special Theory of Relativity is nothing but the justification of the assumption that auxiliary Lorentz Transformation Equations are real.

1. It is well known that the following are the auxiliary Lorentz Transformation Equations in standard and in inverse forms.

Standard form : $x' = \gamma(x - ut),\ y' = y,\ z' = z, t' = \gamma(t - ux/c^2)$

Inverse form : $x = \gamma(x' + ut'),\ y = y', z = z',\ t = \gamma(t' + ux'/c^2)$.

2. But it is not at all known that the first three of the standard auxiliary Lorentz Transformation Equations i.e., $x' = \gamma(x - ut),\ y' = y,\ z' = z$ were not of Lorentz.

To solve electrodynamic problems of steadily moving systems of charges, Heaviside and Thomson (1888,1889) transformed D'Alembert's equations for dynamic potential $\Box^2\Phi = -\rho/\varepsilon_0$ to the Poisson's form of static potential $\nabla'^2\Phi' = -\rho'/\varepsilon_0$ with the help of these auxiliary space transformation equations $x' = \gamma(x - ut)$, $y' = y$ and $z' = z$.

3. It could be shown that all electrodynamic equations used in special relativity could equally be deduced from Heaviside's classical electrodynamics using those three auxiliary equations [1, 2, 3].

4. Following Heaviside – Thomson's auxiliary state to solve electrodynamic potential problems, Lorentz solved radiation problems of steadily moving systems transforming auxiliary radiation equation in the Maxwell's form i.e., $\Box'^2\mathbf{E}' = 0$ with the help of the auxiliary time equation $t' = \gamma(t - ux/c^2)$.

5. It is unfortunate that institutional physicists are innocently unaware of the fact that auxiliary Lorentz Tranformation Equations are classical. Anybody who uses these equations to solve electrodynamic problems relating point charges employ classical physics ab initio.

Lorentz, however, could not explain the null result of the Michelson-Morley Experiment from any electrodynamic principle.

6. Following a suggestion of Fitzgerald, to explain the null result of the Michelson-Morley Experiment somehow, Lorentz assumed that Heaviside-Thomson auxiliary space equations i.e., $x' = \gamma(x - ut)$, $y' = y$ and $z' = z$ are real., which violates classical physics; and Lorentz was fully aware of this.

7. It was Albert Einstein who assumed that all four Lorentz transformation equations are real and tried to justify somehow the reality of those equations in the following way:

Lorentz transformation equations could be algebraically deduced from many sets of arbitrary equations. Einstein chose such two sets of equations, the first set viz.,

$x' = \gamma(x - ut)$, $y' = y$, $z' = z$ and $x = \gamma(x' + ut')$, $y = y'$, $z = z'$, γ being unknown [from the standard and from the inverse Lorentz Transformation Equations] and the second set viz.,

$x^2 + y^2 + z^2 = c^2t^2$ and $x'^2 + y'^2 + z'^2 = c^2t'^2$

[from real radiation equation $\nabla^2\mathbf{E} = 0$, and auxiliary radiation equation $\nabla'^2\mathbf{E}' = 0$] from which Lorentz Transformation Equations could be deduced.

8. Now, he assumed that both the sets are real (which means that auxiliary state in classical electrodynamics is itself real), therefore, Lorentz Transformation Equations deduced from those two sets of equations are themselves real.

Einstein, however, liked to describe physics in terms of mystic divine principles.

He stated his first set of assumption with religious certainty in the name of first principle which is *all laws of physics are the same in all inertial frames* by which he means that the set of the equations

$x' = \gamma(x - ut)$, $y' = y$, $z' = z$ and $x = \gamma(x' + ut')$, $y = y'$, $z = z'$ are real.

Similarly, he stated his second set of assumption with the same certainty in the name of the second principle which is *the speed of light is the same 'c' in all inertial frames* by which he means that the set of equations

$x^2 + y^2 + z^2 = c^2t^2$ and $x'^2 + y'^2 + z'^2 = c^2t'^2$ are real.

Now, as per Einstein, as those principles are real, therefore, Lorentz Transformation Equations are real.

Thereafter, Einstein and his followers reformulated Newton's mechanics in terms of those two absurd principles. This is what the theory of special relativity is.

9. It has been proved with certainty that the speed of light on the surface of the earth in any direction is 'c'. But, there is not a single experiment to prove that the speed of light is the same 'c' in all inertial frames.

When a radiating dipole moves on Earth, and an observer is at rest on Earth, there is transverse Doppler's effect, which could be derived from the theory of relativity as well as from classical electrodynamics. This effect has been confirmed by experiments. But if the radiating dipole is at rest on Earth, and an observer moves in the same opposite motion, there should be no Doppler's effect from classical consideration. But, from the consideration of the Einsteinian idea of relative space, there should also be the same transverse Doppler's effect. But this could not be shown by any experiment.

Both electrodynamic calculations from Maxwell and relativistic calculations from Einstein are exactly the same for electrodynamics of point charges and radiation problems of steadily moving dipoles. But the results of these two different ways of calculations markedly differ for the cases when moving charged body or the moving charge itself occupies an appreciable volume or surface area. The most remarkable difference arises in the calculation of the effects of electromagnetic systems stationary on earth while the observer measuring the effect moves on it.

All meticulous experiments to establish relativity in the domain of electrodynamics are related somehow with point charge electrodynamics and radiation problems of dipoles in cases when electromagnetic systems move steadily and the stationary observer measures the effects. Relativists cite the results of these experiments in their favor. But the same results could be predicted from Maxwell, too, in those cases.

In absence of the experiments on large charge electrodynamics and on the effects of electromagnetic system stationary on earth to a steadily moving observer measuring the effects, special relativity could not claim its superiority over Maxwell's electrodynamics.

B. General Theory of Relativity is the mystic assumption that the presence of bodies in the Minkowski space (special relativistic space) makes that space curved such that out of 16 matrices of the space $g_{44} \approx (1-\frac{2GM}{c^2 r})$ [which is equal to $(1+2\Phi)$ in relativistic unit] , $g_{11} \approx -(1-\frac{2GM}{c^2 r})^{-1}$ [which is equal to $-(1+2\Phi)^{-1}$ in the relativistic unit]and the remaining other indices are unaltered [r being the radius of the gravitating body; G, the gravitational constant; M, the mass of the gravitating body and c is the speed of light in free space].

Isaac Newton formulated the laws of mechanics as well as the law of gravitation. Einstein, however, reformulated the laws of mechanics as per his absurd principles of

special relativity and set his plan to reformulate the law of gravitation consistent with special relativity.

1. To do so, Einstein assumed that the presence of a body in the Minkowski space makes that space curved. Now, he described the motion of a test particle near a body as the natural geodesic motion of the test particle in the curved space, instead of as the effect of force acting between the body and the test particle.

2. The following are the 14 matrices out of the 16 matrices of Minkowski space in spherical co-ordinates

$$\begin{matrix} g_{11} & 0 & 0 & 0 \\ 0 & -r^2 & 0 & 0 \\ 0 & 0 & -r^2 \sin^2\theta & 0 \\ 0 & 0 & 0 & g_{44} \end{matrix}$$

Einstein observed that if he puts $g_{44} \approx (1+2\Phi)$ in the relativistic unit, he could easily account for the effect of gravitational potential of the earth in the geodesic equation of motion of the test particle near the earth, and then if he puts $g_{11} \approx -(1+2\Phi)^{-1}$ in the relativistic unit, he could account for the advance of the perihelion of Mercury in the geodesic equation of motion of the planet round the sun.

Einstein further observed as per Riemannian geometry, such a curved space is possible when the Ricci tensor of the curved space, $R_{\mu\nu} = 0$, if it was assumed that $g_{44} \approx (1+2\Phi)$.

3. We have previously mentioned that Einstein liked to describe physics in terms of mystic divine principles. So, instead of saying that the presence of bodies in the Minkowski space makes that space curved such that out of 16 matrices of the space $g_{44} \approx (1+2\Phi)$, $g_{11} \approx -(1+2\Phi)^{-1}$ and the remaining other indices are unaltered , he principled that:

(i) Infinitesimally, the physical effects of gravitation are indistinguishable from those of relativistic acceleration which implies that the space near a body is a curved Minkowski space and inertial mass and gravitational mass are one and the same [which is, however, not at all tenable from physical point of view at the outset. As for an example, when a point charge accelerates on the surface of the earth due to gravity (space-time curvature), it will radiate but if the charge is at rest on the surface of the earth and the observer moves towards the charge with the acceleration ‘g’ , no one

should believe from Einstein's suggestion that the observer will measure radiation from the charge]

(ii) g_{44} *of the above space is,* $g_{44} \approx (1+2\Phi)$ **(**Einstein could have made another principle for this naked statement. Thank God, fortunately, he did not do this) which incorporate gravitational potential of the earth in his theory.

(iii*)* $R_{\mu\nu}$*of the space near a body is 0* which incorporates $g_{11} \approx -(1+2\Phi)^{-1}$ via $g_{44} \approx (1+2\Phi)$ in his theory.

(iv) Now, from those principles he chose $R_{\mu\nu} - \frac{1}{2}R = -8\pi\rho$ in the relativistic units as the field equation of the general theory of relativity. The equation measures curvature of space due to the presence of matter.

But Einstein found that the equation is not sufficiently mystic and symmetric as per his world –conception. So, he imported another principle viz., *all laws of physics must be in tensorial form,* from which he finally constructed the divine equation $R_{\mu\nu} - \frac{1}{2}R = -8\pi T_{\mu\nu}$ (R being the scalar curvature of the curved space) in his relativistic units as the field equation of the general theory of relativity.

Einstein incorporated the matrix $g_{11} \approx -(1+2\Phi)^{-1}$ via $g_{44} \approx (1+2\Phi)$ to explain the known result of the advance of the perihelion of Mercury. Therefore, the publicity that the advance of the perihelion of Mercury provides one of the tests of the general theory of relativity is shamefully misleading.

It may be clear from my analysis that Einstein's theory of relativity, both special and general, is absurd, artificial and mystic and there is not a single experiment to uphold the theory.

C. Now, the question arises: is it possible to replace the theory from any classical consideration?

It could be easily shown that all electrodynamic equations used by relativists could equally be deduced from Heaviside's electrodynamics based on Maxwell. Therefore, the above question poses in the long run : is it possible to explain the null result of the Michelson –Morley Experiment and the advance of the perihelion of Mercury from classical consideration?

The answer is: yes, it is very easily possible.

Electromagneticians have amply demonstrated that electric field and magnetic field possess momentum and energy which we could directly experience by our sense organs. This clearly proves that electric and magnetic fields are real physical entities. All physical objects are subject to gravitation and therefore, electric and magnetic fields should similarly be subject to gravitation. The earth carries all physical objects along with its surroundings. Therefore, the earth should similarly carry electric and magnetic

fields along with its surroundings. Light being the vibration of electric and magnetic fields, that implies that the speed of light should be the same 'c' in any direction on the surface of the moving earth, if measured on the surface of the earth. This explains at once the null result of the Michelson-Morley Experiment naturally as well as classically [1, 2, 3].

Electric charge and electromagnetic radiation are similarly real physical entities. Therefore, they, too, should be subject to gravitation and they should have the same acceleration as that of physical bodies in the same gravitating field. Therefore, the speed of light coming from the star should be lesser on the earth than on the star which will at once explain the gravitational red shift. Similarly, a light beam passing through a medium near the surface of the sun should sufficiently bend.

Now planets contain mass and charges and charges should be subject to gravitation and they should have the same acceleration as that of physical bodies in the same gravitating field. This will at once explain the advance of the perihelion of Mercury [4].

From a study of those interesting phenomena in the domain of electrodynamics and gravitation as detailed in [1, 2, 3, 4] we have no escape from the conclusion that like all material bodies, electromagnetic entities are similarly subject to gravitation and this simple, natural and classical consideration is equivalent to special and general relativity.

To write this paper, we have been much influenced by the works of D. Ghosh [1] & Prof. K.C. Kar [5].

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