TRIVIAL INCONSISTENCY OF SPECIAL RELATIVITY'S LIGHT POSTULATE

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20 January 2018

ABSTRACT. Einstein made use of the concept of speed, a concept that is defined to be non-invariant under Galilean transformation, in a postulate to postulate a speed - the speed of light - to be invariant for all inertial reference frames. This is a direct trivial logical inconsistency within Newtonian mechanics which needs no further discussion and deliberation. As such, special relativity is a theory that is mutually independent from Newtonian mechanics. The physical reality as found in the Newtonian world has no connection whatsoever with the physical reality as found in special relativity. Any experiment done and interpreted through special relativity has no relevance in the physical world as observed and represented by Newtonian mechanics.

The Second postulate of special relativity[3] is :

> ***The speed of light is invariant in all inertial reference frames.***

The concept of velocity in mechanics is a defined concept - a definition. It is based on the concept :

$$speed = distance/time\_duration$$

Velocity is the the vector that has speed as its magnitude.

For two inertial reference frames S and S' where S' has a motion of velocity u along the x-axis direction of S, the Galilean transformation for the coordinates for the motion of a body as represented by points $P(x, y, z, t)$ and $P'(x', y', z', t')$ in the frames S and S' are:

$$\begin{aligned} x' &= x - ut; \\ y' &= y; \\ z' &= z; \\ t' &= t; \end{aligned} \tag{1}$$

Key words and phrases. Einstein, special relativity, speed of light, Michelson-Morley experiment, invalid, wrong, refuted, repudiated .

The relevant velocity transformation for the motion of the body along the x-axis direction is:

$$\begin{aligned} &dx'/dt = dx/dt - u; \\ &v' = dx'/dt' = dx'/dt = v - u; \\ &v' = v - u; \end{aligned} \tag{2}$$

The equation: $v' = v - u$ is the velocity transformation of the body from frame S to S'; it is the velocity addition rule for Newtonian mechanics. This means velocity as a concept is non-invariant under the Galilean transformation; in other words, velocity is frame dependent. As the Galilean transformation is the direct consequence of the definition of speed in Newtonian mechanics, it follows that velocity is non-invariant in Newtonian mechanics by definition. If a measured quantity is found in an experiment and the quantity is determined to be invariant in all inertial reference frames, then such a quantity cannot be a speed in the usual sense of speed in Newtonian mechanics.

The current mainstream interpretation of the 1887 Michelson-Morley experiment[2](MMX) is that the experiment was a proof that the speed of light is independent of the motion of the earth; that the speed of light is frame invariant. But such a conclusion is inconsistent with the concept of speed as the definition in Newtonian mechanics is that speed is non-invariant - or frame dependent. The only conclusion out of this logical impasse would be that the so called "speed" of light as measured by the experiment cannot be a speed as in the concept defined in Newtonian mechanics or that the MMX experimental setup was unacceptable.

> ***The result of the Michelson-Morley experiment shows either the experimental setup was a failure or the interpretation of the experiment was wrong.***

Velocity is Galilean non-invariant which means velocity - and thus speed - cannot be invariant in all inertial reference frames. Einstein introduced the light postulate in view of the experimental findings of the 1887 MMX experiment in which the concept of speed was used; he postulated a speed - that of light - to be invariant for all inertial reference frames. As such, the second postulate of special relativity is logically inconsistent under Newtonian mechanics; there is no need for any further discussion and deliberation on this point.

> ***The Theory of Special Relativity is incompatible with Newtonian mechanics.***

So now, what have we to say concerning the relation between Newtonian mechanics and special relativity? The answer is that Newtonian mechanics and special relativity are mutually independent of each other. Since the time of Newton when the *Principia*[1] was first published, there has been a physical world and physical reality as

represented by Newtonian mechanics; there has never been a single instance in which empirical evidence was observed to be in contradiction with Newtonian mechanics. The introduction and acceptance of special relativity creates a physical world of its own and a physical reality different from the physical reality of the Newtonian world. We now have two "*worlds of reality*" - the one has absolutely no relevance to the other. If experiments are performed and interpreted according to the theory of special relativity, whatever experimental results found and interpreted according to special reality have significance only in the new physical reality of special relativity. Such experiments have absolutely no significance in Newtonian physical reality as it is only governed by the laws under Newtonian mechanics.

> ***The theory of special relativity and its findings cannot be used to prove nor disprove any physics as interpreted through Newtonian mechanics.***

1. CONCLUSION

The current acceptance of special relativity and whatever experimental evidence found that shows that the physical world is consistent with the interpretation of special relativity is only true when the physical world is viewed according to the new relativistic perspective. The relativistic perspective represents a new physical reality that is mutually independent of the physical reality of Newtonian mechanics. The one has no relation to the other. So the physics world now has two sets of physicality concerning our physical world,e.g.:

- Newtonian mechanics: mass is invariant; kinetic energy formula is: $\frac{1}{2}mv^2$; speed of a body has no upper limit; protons within the Large Hadron Collider (LHC) of CERN is limited to 470MeV in Newtonian physical reality.
- Special relativity: mass is relativistic increasing with velocity;kinetic energy formula is: $(\gamma - 1)m_0c^2$; speed of a body cannot exceed the speed of light;protons within the LHC have been accelerated to energy as high as 7TeV in relativistic physical reality.

The physics world are free to chose and work within Newtonian mechanics or within Special Relativity theory; the one has no relation to the other.

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