与中文翻译: 狭义相对论光速度假设的不一致

TRIVIAL INCONSISTENCY OF SPECIAL RELATIVITY'S LIGHT SPEED POSTULATE

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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:

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

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

$$dx'/dt = dx/dt - u;$$
$$v' = dx'/dt' = dx'/dt = v - u; \qquad (2)$$
$$v' = v - u;$$

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 measurement is made in an experiment and the value 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 an experiment is performed and interpreted according to the theory of special relativity, its result has significance only in the new physical reality of special relativity. Such an experiment absolutely has 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 is free to choose and work within Newtonian mechanics or Special Relativity theory; the one has no relation to the other.

ABSTRACT. 文章摘要:

　　速度的概念是在伽利略变换下被定义为非恒定的概念。 爱因斯坦在假设中利用这个速度概念来假设速度 - 光速 - 对于所有惯性参考系都是不变的。 这是牛顿力学中直接无足轻重的逻辑不一致，不需要进一步讨论和审议。 因此，狭义相对论是一种与牛顿力学相互独立的理论。 牛顿世界中发现的物理现实与狭义相对论中的物理现实毫无关系。 通过狭义相对论完成和解释的任何实验都与牛顿力学所观察和表示的物理世界没有关系。

狭义相对论的第二个假设是：

光速在所有惯性参考系中都不变。

速度在力学中的概念是一个定义的概念 - 一个定义。 它基于以下概念： 速度=距离/持续时间 速度是具有速度的矢量。

对于两个惯性参考系 S 和 S'，其中 S' 具有沿着 S 的x轴方向的速度u的运动，对于由帧中的点

$$P(x, y, z, t)$$

和

$$P'(x', y', z', t')$$

表示的身体运动的坐标的伽利略变换 S 和 S' 是：

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

物体沿x轴方向运动的相关速度变换为：

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

等式：v'= v - u是物体从S到S'的速度变换; 它是牛顿力学的速度加法原则。 这意味着速度作为一个概念在伽利略变换下是非恒定的; 换句话说，速度是依赖于帧的。 由于伽利略变换是牛顿力学定义速度的直接后果，因此定义为速度在牛顿力学中是非不变的。如果在实验中进行测量并且在所有惯性参考系中确定该值不变，那么这样的量不可能是牛顿力学通常意义上的速度。

1887年迈克尔逊 - 莫雷实验,[2](MMX),的当前主流解释是，该实验证明光速与地球的运动无关; 光速是帧不变的。 但是这种结论与速度的概念不一致，因为牛顿力学中的定义是速度是非恒定的 - 或者与框架有关。 从这个逻辑僵局中唯一可以得出的结论是，由实验测量的光的所谓 "速度" 不能像牛顿力学中定义的概念那样是速度，或者MMX实验装置是不可接受的。

迈克尔逊 - 莫雷实验的结果表明，实验设置是失败的，或者实验的解释是错误的。

速度是伽利略非不变的，这意味着速度 - 从而速度 - 在所有惯性参考系中都不能保持不变。 爱因斯坦根据1887年 MMX 实验的实验结果介绍了这个假设，其中使用了速度的概念; 他假设一个速度 - 光的速度 - 对于所有惯性参考系都是不变的。 因此，狭义相对论的第二个假设在牛顿力学下是逻辑不一致的; 在这一点上不需要进一步的讨论和审议。

狭义相对论与牛顿力学是互不相关的。

所以，现在我们要说牛顿力学和狭义相对论之间的关系吗？答案是牛顿力学和狭义相对论是相互独立的。自牛顿时代，*Principia*[1],首次出版以来，以牛顿力学为代表的物理世界和物理现实从来没有一个实例证明经验证据与牛顿力学相矛盾。狭义相对论的引入和接受创造了一个物理世界，它与牛顿世界的物理现实不同。我们现在有两个"现实世界"，它与另一个完全没有关系。如果按照狭义相对论的理论进行实验和解释，其结果只有在狭义相对论的新物理现实中才有意义。这样的实验在牛顿物理现实中绝对没有意义，因为牛顿物理现实只受牛顿力学下的定律支配。

> 狭义相对论理论及其发现不能用于证明或反驳任何通过牛顿力学解释的物理学。

1. 结论

目前对狭义相对论的接受以及发现的任何实验证据表明，物理世界与狭义相对论的解释一致时，只有当根据新的相对论观点来看物质世界时才是如此。相对论观点代表了一种与牛顿力学的物理现实相互独立的新物理现实。一个与另一个没有关系。所以物理世界现在有两套关于我们物理世界的物理性质，例如：

- 牛顿力学：质量不变; 动能公式为：$\frac{1}{2}mv^2$; 身体的速度没有上限; 在 CERN 的大型强子对撞机（LHC）内的质子在牛顿物理现实中仅限于 470MeV。
- 狭义相对论：质量相对论随速度增加;动能公式为：$(\gamma - 1)m_0c^2$; 身体的速度不能超过光速;在相对论的物理现实中，大型强子对撞机内的质子已经被加速到高达 7TeV 的能量。

物理学界可以随意选择牛顿力学或狭义相对论理论; 两者互不相关。

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