Time and Relative Reflection Symmetry

Eric Su
eric.su.mobile@gmail.com
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The relative reflection symmetry exists for an isolated system of two stationary persons. The first person sees the second person in a distance away. The second person sees the first person in the same distance away but in the opposite direction. Such symmetry also exists for two mobile persons. Both persons see each other moving at the same speed but in opposite direction in their own rest frames. From the definition of velocity, the time in the rest frame of the first person can be compared to the time in the rest frame of the second person. The result shows that the time in the rest frame of the first person differs from the time in the rest frame of the second person by a constant. Two simultaneous events in one inertial reference frame are also simultaneous in another inertial reference frame.

I. INTRODUCTION

Let two stationary persons be a certain distance apart. The first person sees the second person from a distance. The second person also sees the first person from the same distance away but in the opposite direction. This is called relative reflection symmetry.

Such symmetry also exists if the second person is moving. The first person sees the second person moving at a speed. The second person also sees the first person moving at the same speed but in the opposite direction.

The physics in the rest frame of the first person is the same as the physics in the rest frame of the second person but in an opposite direction. From this symmetry. the times from both rest frames can be compared analytically.

II. PROOF

Consider one dimensional motion.

A. Relative Motion

Let a person P_1 be stationary at the origin in a reference frame F_1. Let another person P_2 be at a position x in F_1.

Let the rest frame of P_2 be F_2. P_2 is stationary at the origin of F_2. From the relative reflection symmetry, P_1 is at the position of -x in F_2.

Let P_2 move at the speed of v relative to F_1. From the relative reflection symmetry, P_1 is moving at the speed of -v relative to F_2.

B. Relative Time

Let t_1 be the time in F_1. P_2 moves at the speed of v in F_1. This motion can be described by the following equation,

$$\frac{dx}{dt_1} = v \tag{1}$$

Let t_2 be the time in F_2. P_1 moves at the speed of -v in F_2. This motion can be described by the following equation,

$$\frac{d(-x)}{dt_2} = -v \tag{2}$$

From equations (1,2),

$$dt_1 = dt_2 \tag{3}$$

$$t_1 = t_2 + A \tag{4}$$

The time in F_2 differs from the time in F_2 by a constant A which can be chosen as zero or any value by the initial condition.

From equation (3), if dt_1 is zero then dt_2 is also zero. Two simultaneous events in one inertial reference frame are also simultaneous in another inertial reference frame.

III. CONCLUSION

There is a translation symmetry for time in inertial reference frame. Time in one inertial reference frame always differs from time in another inertial reference frame by a constant.

Two simultaneous events in one inertial reference frame are always simultaneous in another inertial reference frame.

Therefore, time dilation from Lorentz transformation[1] is incorrect because it fails to describe the relative reflection symmetry in physics.

Lorentz transformation is the foundation of the theory of Special Relativity[2]. As a result, all predictions from this theory are incorrect in physics because of Lorentz transformation.

[1] H. R. Brown (2001), The origin of length contraction: 1. The FitzGeraldLorentz deformation hypothesis, American Journal of Physics 69, 1044 1054. E-prints: gr-qc/0104032; PITT-PHIL-SCI00000218.

[2] Reignier, J.: The birth of special relativity - "One more essay on the subject". arXiv:physics/0008229 (2000) Relativity, the FitzGerald-Lorentz Contraction, and Quantum Theory

[3] Eric Su: List of Publications, http://vixra.org/author/eric_su