Conservation Of Displacement From Isotropic Symmetry

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The length of a rod in motion may be different from the length of another identical rod at rest. The difference in length between two rods is independent of the direction of the motion of the moving rod. The isotropic symmetry demands that the difference in length is conserved in any direction. All moving rods are of identical length as long as the speed of motion is identical. The center of two rods in anti-parallel motion will coincide. The ends will also coincide. Such end-to-end match exists in all reference frames. The length of a rod is independent of reference frame and motion.

I. INTRODUCTION

The isotropic symmetry exists between two identical rods moving at the same speed but along two random radial directions. The length of both rods is identical if the speed of both rods is identical. The length of a rod in motion may be different from the length of an identical rod at rest. The difference in length is independent of the radial direction.

The isotropic symmetry becomes parity symmetry in one-dimensional space. Two identical rods in anti-parallel motion will exhibit isotropic symmetry. The centers of each rod will form parity symmetry. As the rods moves toward each other, the centers of the rod will coincide. The ends of each rod will also coincide with the ends of the other rod if both rods are of identical length.

II. PROOF

A. Isotropic Symmetry

Two identical rods, ROD_1 and ROD_2, are stationary relative to a reference frame F_3. The rest frame of ROD_1 is F_1. The length of ROD_1 is L_1. The rest frame of ROD_2 is F_2. The length of ROD_2 is L_2.

Both ROD_1 and ROD_2 are stationary relative to F_3. Therefore,

$$L_1 = L_2 \tag{1}$$

Let t_3 be the time of F_3. At $t_3 = 0$, let ROD_1 be under acceleration A relative to F_3 in a random radial direction from the origin of F_3. Let ROD_2 be under acceleration A relative to F_3 in another radial direction from the origin of F_3. Each rod is aligned with its direction of motion. F_1 becomes different from F_2.

Let L_3 be the length of the third identical rod that is stationary relative to F_3. The isotropic symmetry in F_3 demands that the difference between L_1 and L_3 is identical to the difference between L_2 and L_3.

$$L_1 - L_3 = L_2 - L_3 \tag{2}$$

Eleminate L_3 from both sides,

$$L_1 = L_2 \tag{3}$$

In F_3, the length of ROD_1 is identical to the length of ROD_2 at any time as long as both rods move at identical speed.

B. Parity Symmetry

Confine the motion of the rods to one dimension. The isotropic symmetry becomes parity symmetry.

Let 3 identical rods be stationary relative to F_3. The center of ROD_1 is located at R position. The center of ROD_2 is located at -R position. The center of ROD_3 is located at the origin. Let the length of rod be L_1 for ROD_1, L_2 for ROD_2, L_3 for ROD_3.

$$L_1 = L_2 = L_3 \tag{4}$$

At $t_3 = 0$, put ROD_1 and ROD_2 into anti-parallel motion. Let ROD_1 be under acceleration A relative to F_3 in -x direction. Let ROD_2 be under acceleration A relative to F_3 in +x direction. Both rods move toward each other and will meet at the origin.

The centers of both rods move at the same speed and will reach the origin at the same time.

The parity symmetry demands that the difference in length between ROD_1 and ROD_3 as observed from F_3 is identical to the difference in length between ROD_2 and ROD_3 as observed from F_3.

$$L_1 - L_3 = L_2 - L_3 \tag{5}$$

Eliminate L_3 from both sides,

$$L_1 = L_2 \tag{6}$$

Both rods in motion are of identical length in F_3.

As the center of ROD_1 coincides with the center of ROD_2 in F_3, the ends of both rods also coincide. The end-to-end match on both rods exists due to the identical length, $L_1 = L_2$ in F_3.

However, the end-to-end match exists in all reference frames if it exists in one reference frame. Therefore, ROD_1 and ROD_2 are of the identical length in all reference frames.

III. CONCLUSION

The length of an object is independent of its motion. The isotropic symmetry corresponds to the conservation of the length in all reference frames.

Lorentz transformation[1.2.3] incorrectly claims the length of a moving object depends on its speed. This has been proved to be false. Consequently, the theory of special relativity, which is based on Lorentz transformation, is also false.

Furthermore, any theory that violates the conservation of space displacement is invalid in physics.

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