NULLIFICATION OF RELATIVITY THEORY VIA THE SUFFICIENCY OF THE GALILEAN VELOCITY TRANSFORMATION

\[ S = \text{Stationary system} \]
\[ S_1 = \text{Sub-system moving to the right within } S \]
\[ u = \text{velocity of } S_1 \text{ relative to } S \]
\[ v_1 = \text{velocity of object relative to } S_1 \]
\[ v = \text{velocity of object relative to } S \]

**Galilean Velocity Transformation**

\[ v = v_1 + u \]

**The Relativist**

Light always travels at \( c \), therefore if the object fired by \( S_1 \) is light, the equation becomes:

\[ c = c_1 + u \]

The speed of light is always \( c \), therefore because \( u > 0 \), the time scale of \( c_1 \) must be different to the time scale of \( c \):

\[ c = \Delta x/\Delta t \]
\[ c_1 = \Delta x_1/\Delta t_1 \]
The Realist

Light always travels at \( c \), therefore if the object fired by \( S_1 \) is light, the equation becomes:

\[ c = c_1 + u \]

The speed of light is *always* \( c \), therefore:

\[ c_1 = c \]

Therefore we derive that \( u = 0 \) and that \( S_1 \) must be is redundant.

This accords with the fact that the speed at which light travels is unaffected by the speed of its source.

**Conclusion**

Although the Galilean transformation was devised for objects with mass, it can cater for a massless object such as light by means of its special case where the speed of its sub-system is 0.

What if \( S \) is itself a sub-system? Then it becomes \( S_1 \) in a new \( S \), and is also redundant, and so on *ad infinitum*: light’s speed is never affected by the speed of its source: its frame of reference is distance alone.

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