

Review of: "Does the Time Dimension has to be Perpendicular to the Space-Dimensions?"

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Potential competing interests: No potential competing interests to declare.

In the manuscript, the Author poses the problem of describing special relativity in terms of “non-perpendicular” time and spatial axes. The paper, however, presents several issues. For example

1. What does it mean 90° as an angle between time and space axes? Angles are defined between two spatial directions, not a time direction and something else.
2. The Author probably ignores that the issue of having “non-perpendicular” time-space axes is not a new issue and is resolved, if not in special relativity itself (see below), in general relativity, in which having a metric tensor allows for arbitrary relative directions of axes, in the same way that a spatial metric tensor allows for non-orthogonal spatial axes in classical mechanics.
3. Consider an ordinary reference frame, one comprising of time and spatial axes that the Author would call “perpendicular”. The axes are no longer “perpendicular” when considered by an observer in relative motion. Thus, as we see, time and space axes do not need to be “perpendicular” in special relativity.
4. In this sense, Figure 1 is misleading, as the Author forgot to represent a space axis.
5. Eqs. 1 and 2 are not correct, as the Author forgot the necessary Lorentz factors and velocity parameters.

Concluding, as we have seen, the question posed by the paper is not in fact a real question as it is already resolved within special and general relativity.