

Review of: "Accelerated Motion Towards Relativistic Velocities Described by Newtonian Mechanics"

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Potential competing interests: No potential competing interests to declare.

The author's declared aim (in response to one of the reviewers) is to offer a simpler set of postulates than special relativity (SR), in order to derive some of the same conclusions. However, I find the alternative postulates presented here much harder to understand or accept than SR itself. SR's postulates connect to empirical results (Fizeau's experiment, Michelson-Morley, stellar aberration, etc...). The author's postulates seemingly arise out of nowhere. Furthermore, they are problematic:

Postulate 1 refers to the earth. Unless the author means to roll back the Copernician revolution, I assume the earth is an arbitrary body, and hence every body in the universe also moves at speed c in the w direction (this is supported later on by the rocket also moving at speed c in this direction).

This means that although described as a "spatial" direction, w is actually very different from the other axes. As a result, the vectorial structure of Newtonian mechanics is destroyed here, since a vector is defined by its behavior under a change of coordinate frame. However, a rotation in the 4-dimensional space postulated here would mix the w -direction with the normal other spatial directions, which is inconsistent with the unique kinematic behavior of bodies moving through it. Thus, is it unclear how postulate 1 is consistent with Newtonian mechanics. In particular, the special status of the w -direction means that this 4-dimensional space is not isotropic.

Postulate 2 introduces a space of existence, again as a drastic departure from known physics, and hardly a "simpler" idea than SR. Why observers cannot observe parts of space that are otherwise described as "ordinary spatial dimension[s]" is unclear and inconsistent with the Euclidean structure posited here of this space.

The analysis of the motion of a rocket, given in the next section is incorrect. The author states that the rocket's acceleration is perpendicular to its velocity. This is only true at one single point, however, A in Fig.1. At any other point, this is not the case.

Moreover, the perpendicularity would not imply that the path is circular. Any path in which the speed (magnitude of velocity) is constant has the acceleration perpendicular to the velocity, independently of the path's shape. Furthermore, the author assumes that the supposed constant speed of the rocket is c , but this ignores the added velocity in the z -direction, which makes the analysis incorrect again.

In fact, a constant acceleration along the z -direction makes this motion akin to simple ballistic motion (rotated by 90

degrees with respect to the usual depiction), and the path of the rocket is therefore parabolic, not circular. Consequently, Eq.(5) is incorrect - for several independent reasons - and so is everything that is derived from it.