Two-Rockets Thought Experiment

FLORENTIN SMARANDACHE, University of New Mexico — Let \( n \geq 2 \) be identical rockets: \( R_1, R_2, \ldots, R_n \). Each of them moving at constant different velocities respectively \( v_1, v_2, \ldots, v_n \) on parallel directions in the same sense. In each rocket there is a light clock, the observer on earth also has a light clock. All \( n+1 \) light clocks are identical and synchronized. The proper time \( \Delta t' \) in each rocket is the same. Let’s focus on two arbitrary rockets \( R_i \) and \( R_j \) from the previous \( n \) rockets. Let’s suppose, without loss of generality, that their speeds verify \( v_i < v_j \). (1) In the reference frame of the astronaut in \( R_i \) it is like rocket \( R_i \) is stationary and \( R_j \) moves with the speed \( v_j - v_i \). Therefore the non-proper time interval as measured by the astronaut in \( R_i \) with respect to the event in \( R_j \) is dilated with the factor \( D(v_j - v_i) \), i.e. \( \Delta t_{i:j} = \Delta t' D(v_j - v_i) \), and rocket \( R_j \) is contracted with the factor \( C(v_j - v_i) \), i.e. \( L_j = L_j' C(v_j - v_i) \). But in the reference frame of the astronaut in \( R_j \) it is like rocket \( R_j \) is stationary and \( R_i \) moves with the speed \( v_j - v_i \) in opposite direction. Therefore, similarly, the non-proper time interval as measured by the astronaut in \( R_j \) with respect to the event in \( R_i \) is dilated with the same factor \( D(v_j - v_i) \), i.e. \( \Delta t_{j:i} = \Delta t' D(v_j - v_i) \), and rocket \( R_i \) is contracted with the factor \( C(v_j - v_i) \), i.e. \( L_i = L_i' C(v_j - v_i) \). But it is a contradiction to have time dilations in both rockets. (3) Varying \( i, j \) in \( \{1, 2, \ldots, n\} \) in this Thought Experiment we get again other multiple contradictions about time dilations. Similarly about length contractions, because we get for a rocket \( R_j \), \( n-2 \) different length contraction factors: \( C(v_j - v_1) \), \( C(v_j - v_2) \), \ldots, \( C(v_j - v_{j-1}) \), \( C(v_j - v_{j+1}) \), \ldots, \( C(v_j - v_n) \) simultaneously! Which is abnormal.

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