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Multi-Speed Thought Experiment FLORENTIN SMARANDACHE, University of New Mexico — We consider n $\geq$ 2 identical rockets: $R_1, R_2, \ldots, R_n$. Each of them moving at constant different velocities respectively v_1, v_2, …, 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. Suppose that the n speeds of the rockets verify respectively the inequalities: $0 < v_1 < v_2 < \ldots < v_{n-1} < v_n < c$. The observer on rocket R_1 measures the non-proper time interval of the event in R_j as: $\Delta t_{1,j} = \Delta t' \bullet D(v_j - v_1)$, therefore the time dilation factor is $D(v_j - v_1)$, where j$\in${2, 3, …, n}. Thus the time dilation factor is respectively: $D(v_2 - v_1), D(v_3 - v_1), \ldots, D(v_n - v_1)$, which is again a multiple contradiction. Because all n rockets travel in the same time, we have a dilemma: which one of the above n-1 time dilation factors to consider for calculating the non-proper time as measured by the observer in rocket R_1? Similar dilemma if instead of the observer in rocket R_1 we take the observer in rocket R_k, for $2 \leq k \leq n-2$. Also a same multiple dilemma occurs if we take into consideration each rocket's length, which gets contracted in multiple different ways simultaneously!

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