Title: A Proof that the Separation Between Accelerating Rockets is Constant

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Abstract:

For rockets whose accelerometers show identical, constant readings, their separation is constant. The proof of that fact makes use of the limit of a sequence of accelerations "A", lasting for a time "delta_t", such that the total change in rapidity "A*delta_t", and therefore the total change in the velocity, don't vary for each iteration of the sequence of accelerations. In the limit, as "A" goes to infinity, and "delta_t" goes to zero, the velocity of the rockets changes instantaneously, and their separation doesn't change. The result is analogous to the CoMoving Inertial Frame (CMIF) simultaneity method of Special Relativity, which says that, according to the traveling twin (him), the home twin (she) instantaneously gets older during his instantaneous turnaround. Likewise, the ages of the people on the leading rocket instantaneously get older during their instantaneous velocity change.

The above abstract really says all that needs to be said about the proof that the separation between accelerating rockets is constant. The only thing that would be useful to add, is to elaborate a bit about the CoMoving Inertial Frame (CMIF) simultaneity method used to resolve the twin paradox, and to give the "delta_CADO" equation that makes the CMIF method especially easy and quick to use.

The CMIF simultaneity method says that the accelerating person (the "AP") must agree with the inertial person ("IP") who is momentarily stationary with respect to the accelerating person at any given instant. In the case of the instantaneous turnaround, there is an IP1 immediately before the turnaround, and an IP2 immediately after the turnaround. For each of those IP's, their line of simultaneity ("LOS") can be plotted on a Minkowski diagram. Where those two LOS's intersect the home twin's world line then give her age, according to the AP, immediately before and after the turnaround. I.e., that gives the amount by which she instantaneously ages during his turnaround, according to him.

It's even easier to get that instantaneous age change by using the "delta_CADO" equation:

delta_CADO = - L * delta(v),

where

delta(v) = v_after_turnaround - v_before_turnaround,

and "L" is their separation, according to HER. Velocities are positive when directed away from her, and negative when directed toward her.