

Re: SR time dilation on remote objects ?

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Bjoern Feuerbacher <feuerbac@thphys.uni-heidelberg.de> wrote in message news:<[ceqahd\\$f84\\$1@news.urz.uni-heidelberg.de](mailto:ceqahd$f84$1@news.urz.uni-heidelberg.de)>...

> *Sorry for the late reply – I was on holiday for a week...*

>

We are going round in circles. Here is the summary I told you about.

FALSIFYING SR

As no inertial frame can be found in the Universe, no real (physical) experiment can falsify special relativity.

There are however two other possibilities:

- 1) To demonstrate that the derivation of SR formulas has a logical flaw, see <http://perso.wanadoo.fr/mluttgens/LTfalse.htm>
- 2) By way of a thought experiment, proving that mutual time dilation is a hoax. Hereafter is such experiment:

Aircrafts thought experiment:

A departure (and arrival) airport is situated exactly at the North Pole.

At take-off, two aircrafts A and B synchronize their clocks with the airport clock. All three clocks are set to 0.

Immediately after synchronization, they fly in opposite directions, approximately at ground level, at some ground velocity v , each following the same meridian.

At landing, after one circumnavigation, the readings of the clocks A and B are compared, and found to be identical.

Let's notice that, according to the North Pole observer, the circumnavigation took approximately $t(P) = 2\pi R/v$ sec, where R is the Earth's radius.

Hence, at landing, the clock of aircraft A reads

$t_A = t(P) * \sqrt{1-v^2/c^2}$ sec,

and the clock of aircraft B reads

$t_B = t(P) * \sqrt{1-v^2/c^2}$ sec.

Thus, $t_A = t_B$, i.e. the readings of clocks A and B are identical.

This conclusion is compatible with the results of the Hafele & Keating experiment, performed during October 1971:

"Four caesium clocks flown around the world on commercial jet flights, once eastward and once westward, recorded directionally dependent time differences which are in good agreement with predictions of conventional relativity theory. Relative to the atomic time scale of the U.S. Naval Observatory, the flying clock lost 59 ± 10 nanoseconds during the eastward trip and gained 273 ± 7 nanoseconds during the westward trip." (Cf. article in *Science*, Vol. 17, 14 July 1972, pp. 166–179).

Readings $t_A(d)$ and $t_B(d)$ of clocks A and B at a distance d

from the Pole:

Assuming a homogeneous and spherical Earth, the