Comment on the paper: 'An explanation of the clock paradox'



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LETTER TO THE EDITOR

# Comment on the paper: 'An explanation of the clock paradox'

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**Abstract.** An error in a recently published solution of the clock paradox is pointed out.

In a recent paper Preddy (1973) has advanced another explanation of the famous 'clock paradox' which is confusing and actually wrong in its final result. He obtains that from the viewpoint of observer O′ the clock of observer O was ahead of the clock of O′ by $(L/v)[1-(1/\beta)]$ at the time $(L/\beta v)-(L/c)$. This is incorrect in the sense that it is not the standard result predicted by special relativity theory. The right result is that from the viewpoint of O′ the clock of O is ahead of the clock of O′ by $(L/v)[1-(1/\beta)]$ at the time $L/\beta v$.

It was shown by Terrell (1960) that an accelerated observer will be in trouble obtaining conflicting results if he should attempt to apply operational prescriptions ordinarily valid for inertial observers. Certainly O′ may *define* the space–time co-ordinates of the readings of the clock of O through the method of the two telescopes used in Preddy's paper. But should this convention be adopted it must be noticed that, quite aside from the question of the conflicting results, O′ would obtain that the time lag between the two clocks remains constant between the times $(L/\beta v)-(L/c)$ and $L/\beta v$. And this despite the fact that O′ continues moving with the same velocity during this time interval. At any rate this convention is rather arbitrary since O′ might as well adopt other operational prescriptions equally valid for inertial observers that would yield different results. As Preddy says nothing that implies the preceding considerations one only can think that at best there is a misleading omission in his paper, and that as it stands it does not provide an adequate explanation of the clock paradox from the point of view of O′.

## References

Preddy W S 1973 *J. Phys.* A: *Math., Nucl. Gen.* **6** 615–8
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