



## Relativistic Physics for Teachers SS 2006

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### 1. Invariance of $s^2$

Convince yourself that the distance  $s^2$  is invariant under Lorentz-transformations.

### 2. Causality

At a point  $S = (t, x)$  a signal is emitted with a velocity  $v > c$  (questionable, but this is just a Gedankenexperiment). At a point  $E = (t + \Delta t, x + \Delta x)$  it triggers an event. Convince yourself that there are observers which see causality violated.