

## Re: david question: disturbing interval paradox (spacetime)

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**From:** Paul Cardinale ([pcardinale\\_at\\_volcanomail.com](mailto:pcardinale_at_volcanomail.com))

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DavidBowman wrote:

- > *In the Pythagorean theorem, you add the sums of the squares of  $x$ ,  $y$ ,*
- > *and  $z$ . But in four dimensions you use the distance metric (the*
- > *"interval"), in which you SUBTRACT  $t^2$  (actually,  $ct^2$ ) from the sum*
- >  *$x^2 + y^2 + z^2$ .*
- >
- > *Among other amazing things, this implies that if the spatial distance*
- > *between two events is the same as the temporal distance, (i.e., the*
- > *interval is neither spacelike or timelike), that the 4-D distance*
- > *between the events is zero.*
- >
- > *For instance, (given that light goes one foot in a nanosecond), if my*
- > *extended arm is two feet long and my elbow is in the middle, then the*
- > *absolute distance (interval) between my shoulder "now" and my "elbow*
- a
- > *nanosecond ago" is zero.*
- >

The spacetime interval is not "absolute distance". It is the elapsed proper time of an object traveling inertially between the two events. The fact that there are null intervals between objects means only that light can travel between the objects.

Paul Cardinale