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Tangential Relations between Distorted Acute Angles vs. Original Acute Angles of a Traveling Right Triangle in Special Relativity
FLORENTIN SMARANDACHE, The University of New Mexico — Let's consider a traveling right triangle ΔABC ($\angle A = \pi/2$), with the speed v, and one of its legs AB along the motion direction on the $x-$axis. After contraction of the side AB with the factor C(v), and consequently contraction of the oblique side BC with the oblique-contraction factor

$$OC(v,\theta) = \sqrt{C(v)^2 \cos^2\theta + \sin^2\theta},$$

one gets the right triangle $\Delta A'B'C'$ with the following tangential relations between distorted acute angles vs. original acute angles of the right triangle:

$$\tan B' = \frac{\tan B}{C\,(v)},$$

$$\tan C' = \tan C \cdot C\,(v)\,,$$

where $C(v) = \sqrt{1 - \frac{v^2}{c^2}}$ is the Lorentz contraction factor, and c is the speed of light in vacuum.

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