Abstract Submitted
for the TSS13 Meeting of
The American Physical Society

Tangential Relations between Distorted Angles vs. Original Angles of a Traveling General Triangle in Special Relativity FLORENTIN SMARANDACHE, University of New Mexico — Let's consider a traveling general triangle ΔABC, with the speed v, along its side BC on the direction on the $x-$axis; angles B and C are adjacent to the motion direction, while angle A is of course opposite. Let AM be the perpendicular from A to the motion direction BC. After the contraction of the side BC with the Lorentz factor $C(v) = \sqrt{1 - \frac{v^2}{c^2}}$, and consequently the contractions of the oblique-sides AB and AC with the oblique-contraction factor

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

where θ is the angle between respectively each oblique-side and the motion direction, one gets the general triangle $\Delta A'B'C'$ with the following tangential relations between distorted angles vs. original angles of the general triangle:

$$\tan A' = \tan A \cdot C(v) \cdot \frac{1 - \tan A_1 \tan A_2}{1 - \tan A_1 \tan A_2 C(v)^2},$$

where angles $A_1 = BAM$ and respectively $A_2 = MAC$;

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

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

Florentin Smarandache
University of New Mexico

Date submitted: 26 Jan 2013 Electronic form version 1.4