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**Zbigniew Oziewicz\*** (oziewicz.zbigniew@gmail.com), Ex-Hacienda San Miguel, Calle Roble 13 A, 54715 Cuautitlan Izcalli, Mexico, Mexico. *Affine space with non-reciprocal vectors and the mass centre for the finite light speed.*

Elie Cartan introduced in 1908 the concept of affine space consisting of points and reciprocal vectors given by the ordered pair of points. I am pointing that a hyperboloid of all normalized time-like vectors is an example of the Cartan affine space. Then each point possesses many presentations (called translations) relative to the different reference points. I am relaxing reciprocity restriction. Let a co-vector be associative to a vector, i.e. vector is a crest in the kernel of associated vector. This do not implies that the corresponding observed and reference points must be in the same crest of this co-vector. In this way the Cartan concept of the affine space with reciprocal vectors is generalized to affine space with non-reciprocal vectors. Such generalization allows to determine the intrinsic mass centre for arbitrary set of points, as a point on hyperboloid, using barycentric coordinates introduced by Mobius in 1827. I am showing that the non-reciprocity is equivalent to the finite light speed, and reciprocity corresponds to infinite light speed. (Received February 03, 2016)