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Reflection loops of spaces with congruence and hyperbolic incidence structure

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Abstract: In an absolute space $(P, \mathfrak{L}, \equiv, \alpha)$ with congruence there are line reflections and point reflections. With the help of point reflections one can define in a natural way an addition $+$ of points which is only associative if the product of three point reflection is a point reflection again. In general, for example for the case that $(P, \mathfrak{L}, \alpha)$ is a linear space with hyperbolic incidence structure, the addition is not associative. $(P, +)$ is a K-loop or a Bruck loop.

Keywords: ordered space with congruence, point reflection, Bol loop, K-loop
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