Affinization of algebraic structures

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Abstract

The proposal of Tulczyjew (1985) to formulate analytical mechanics in a way that is independent of the frame of reference is based on replacing vector spaces by affine spaces. This idea leads to a more general programme of 'affinization', in which an algebraic structure with a distinguished element (or nullary operation) is replaced by a version in which no element is distinguished a priori, but a selection of any element retracts it to the original structure. In this talk we discuss a few instances of affinization: heaps as an affine version of groups, affine spaces as affinization of vector spaces, trusses as affinizations of rings, and associative and Lie operations on affine spaces.

Keywords

Affine space; heap; truss; affgebra