CMMSE: Combinatorial structures and finite-dimensional alternative algebras

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Abstract

In this paper, the link between combinatorial structures and alternative algebras is studied, determining which configurations are associated with those algebras. Moreover, the isomorphism classes of each 2-dimensional configuration associated with these algebras is analyzed, providing a new method to classify them. In order to complement the theoretical study, two algorithmic methods are implemented: the first one constructs and draws the (pseudo)digraph associated with a given alternative algebra and the second one tests if a given combinatorial structure is associated with some alternative algebra.

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