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Orthosymmetric bilinear map on Riesz spaces


Abstract: Let $E$ be a Riesz space, $F$ a Hausdorff topological vector space (t.v.s.). We prove, under a certain separation condition, that any orthosymmetric bilinear map $T : E \times E \to F$ is automatically symmetric. This generalizes in certain way an earlier result by F. Ben Amor [On orthosymmetric bilinear maps, Positivity 14 (2010), 123–134]. As an application, we show that under a certain separation condition, any orthogonally additive homogeneous polynomial $P : E \to F$ is linearly represented. This fits in the type of results by Y. Benyamini, S. Lassalle and J.L.G. Llavona [Homogeneous orthogonally additive polynomials on Banach lattices, Bulletin of the London Mathematical Society 38 (2006), no. 3 123–134].

Keywords: orthosymmetric multilinear map; homogeneous polynomial; Riesz space

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References