



# Triangular Norm-Based Measures and Games with Fuzzy Coalitions /

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Monografía

The concept of a value of a coalitional game, in the spirit of R.J. Aumann and L.S. Shapley, is extended to the case of games with fuzzy coalitions, providing new and heuristically meaningful insights into the game theoretical context, which have some significant impact on balance and equilibria analysis in a cooperative environment. Using the suggestive and philosophical power of the concept of fuzzy sets introduced by L.A. Zadeh we develop the mathematical machinery of triangular norm-based measures, i.e. valuations preserving binary operations induced by triangular norms on  $[0,1]$ . Our results not only prove the existence of Aumann--Shapley values for large classes of games with fuzzy coalitions satisfying certain differentiability conditions, but also allow the extension of the domain of such values to games with crisp coalitions, and the application to real life situations such as rate problems for services in bulk

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