pořádá 20.10. 14h v místnosti č. 25 seminář:

Shapley's and Partially-Shapley's Axiomatics with Restricted Symmetry

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According to a Shapley's game-theoretical result, there exists a unique game-value of cooperative games that satisfy axioms on additivity, efficiency, null-player property and symmetry. The original setting requires the symmetry with respect to arbitrary permutations of the players. If we weaken the symmetry axiom to a symmetry with respect to a subgroup G of the permutation group S_n, the uniqueness of the game-value is satisfied if and only if the group G satisfies the following "supertransitivity" property:

$$\forall A \subset \{1, 2, \ldots, n\} : \ G_A = \{g \in G : g(A) = A\}$$

acts transitively on A. Moreover, for an arbitrary hypergraph $\mathcal{H} \subseteq 2^{\{1..n\}}$, $\emptyset \notin \mathcal{H}$, Shapley-value is a unique G-symmetric quasivalue on the linear subspace $\Gamma_{\mathcal{H}} = span(u_A : A \in \mathcal{H}) \leq \Gamma = \mathbb{R}^{2^{\{1..n\}}/\emptyset}$ iff previous condition holds on $\mathcal{H}$. We classify all permutation groups satisfying this property for a full hypergraph $\mathcal{H} \subseteq 2^{\{1..n\}} - \emptyset$ and for a systems of $k-$sets, i.e. $\mathcal{H}_k = \{A \subseteq \{1...n\} : |A| = k\}$, except a complicated case $k = 2$. For a general G, the set of G-symmetric quasivalues on $\mathcal{H}_k$ is an afinne space with dimension defined by some k-depended differential operator on Pólya cycle index of G.

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