COST Action IC 1205 on Computational Social Choice: STSM report

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Purpose of the STSM: A minor purpose was to complete the revision of a joint paper on lexicographic allocations for assignment games. The main purpose was to continue our research project on the core in permutation games, which are the transferable utility variants of the basic house-swapping model of markets with indivisible goods. The core of permutation games is known to be non-empty, but not much is known about its structure. This is in sharp contrast with the many features known for the core of assignment games, although an assignment game can be seen as a special permutation game (on the same player set), moreover, the core of a permutation game can be obtained from the core of a double-size assignment game.

Description of the work carried out: Our paper *Lexicographic allocations and extreme core payoffs: the case of the assignment game* has been reviewed by Annals of Operations Research. During the visit, we enriched the paper by a few new observations, finalized the revision and re-submitted the paper.

During this STSM we have concentrated on a superclass of assignment games, namely cyclic permutation games, and have tried to generalize some of the results we have achieved for assignment games, especially on how to obtain extreme core payoffs in cyclic permutation games by using various easy-to-compute lexicographic allocation methods. We have also considered the possibilities of characterizing game properties (especially convexity and exactness) for cyclic permutation games by properties of the underlying matrix that induces the permutation game. We have also started to investigate the special properties of the dual game of a cyclic permutation game. In all of these lines of research, we use our earlier results and insights obtained for assignment games, and try to extend them to the aformentioned larger class of permutation games.

Future collaborations and foreseen publications: The applicant and the host will continue working on the related open questions necessary to achieve a publishable body of results on the core and / or the (matrix) characterization of (cyclic) permutation games.

Other comments: During this STSM I gave a talk entitled „A characterization set for the per-capita nucleolus in balanced games” in the game theory seminar series of the University of Barcelona.