

COST Action IC1205 on Computational Social Choice: STSM Report

Applicant: Erman Acar

Home institution: University of Mannheim

Home country: Germany

Host: Edith Elkind

Host institution: University of Oxford

Host country: United Kingdom

Dates: 01/10/2016 to 25/10/2016

During this STSM "Hedonic Games with Goals", which took place in Department of Computer Science, University of Oxford between dates 01/10/2016 and 25/10/2016, I had a chance to work with Prof. Edith Elkind. In particular, we tried out to develop a formal framework in which one can represent agents' goals in a hedonic games-like environment. For such agenda, we focused on group activity selection problem with anonymous preferences. This resulted in a framework based on the weighted boolean formulas, along with several alternative directions that we can work with.

A particular advantage of the framework is that, in addition to the classical group activity selection problem, one can represent the simple logical relations between activities, hence offering a structure and giving a chance to make the problem easier in special cases, even though this requires further investigation. Besides, we have defined an interesting utility function which represents anonymous and single-peaked preferences, which has to be studied further.

A somewhat different yet related direction of interest such framework enables is the following: given a list of elementary activities, the weighted goals of the agents, their ideal coalition sizes (single-peaked) along, and a set of logical restrictions on the activities, constructing a set of (possibly complex) activities which maximizes the social welfare. As it turned out, this is also connected to boolean games, and one can go on with several other cases even without considering goal bases in a hedonic environment. We are planning to keep collaborating on those directions, and submit to a major computer science venue.

Additionally, during my visit, I had a chance to meet many young and senior researchers in the University of Oxford, both from multi-agent and knowledge representation community. In particular, I had a chance to discuss with Dr. Fabio Mogavero on a fragment of strategy logic in which one can represent strategies of agents and game theoretic notions inside the logic. This also gave a chance for a future collaboration.

Overall, my research visit resulted in a way that I have discovered many interesting research questions, got a long term research agenda. I am grateful to Cost Action, for making this visit possible.