Workshop on Computational Social Choice

Thursday, October 22th, 2015

Room: SR 15.35, RESOWI E3
Universitätsstraße 15
University of Graz

8:50–9:00 **Welcome**

9:00–9:45 **Dorothea Baumeister**, University of Düsseldorf

Voter dissatisfaction in committee elections

Abstract: The minisum and the minimax rules are two different rules for the election of a committee considered by Brams, Kilgour, and Sanver. As input they assume approval ballots from the voters. The first rule elects those committees which minimize the sum of the Hamming distances to the votes, the second one elects those committees with the smallest maximum Hamming distance to an individual vote. We extend this approach of measuring the dissatisfaction in committee elections to different forms of ballots, i.e., trichotomous votes, complete and incomplete linear orders. To measure the dissatisfaction we will use a modified Hamming distance, ranksums, and a modified Kemeny distance. In addition we study the computational complexity of winner determination for these rules.

9:50–10:10 **Andreas Darmann**, University of Graz

Group activity selection from ordinal preferences

Abstract: We consider the situation in which group activities need to be organized for a set of agents when each agent can take part in at most one activity. The agents preferences depend both on the activity and the number of participants in that activity. In particular, the preferences are given by means of strict orders over such pairs (activity, group size), including the possibility do nothing. Our goal will be to assign agents to activities on basis of their preferences, the minimum requirement being that no agent prefers doing nothing, i.e., not taking part in any activity at all. We take two different approaches to establish such an assignment: (i) by use of k-approval scores; (ii) considering stability concepts such as Nash and core stability.
For each of these approaches, we analyse the computational complexity involved in finding a desired assignment. Particular focus is laid on two natural special cases of agents preferences which allow for positive complexity results.

10:15–10:45 **Coffee break**

10:45–11:30   **Jerome Lang**, University Paris Dauphine

Ordered weighted averages in voting: three applications

Abstract: Ordered weighted averages (Yager, 1983) are a family of cardinal aggregation operators that aggregate scores by taking into account the rank of a score in the ordered list of scores. They allow, among other things, to define a continuum between utilitarianism and egalitarianism. I will present three applications of ordered weighted averages to voting:
- Rank-Dependent Scoring Rules (joint work with Judy Goldsmith, Jrme Lang, Nick Mattei and Patrice Perny, AAAI-14)
- Proportional Multirepresentation and Group Recommendation (joint work with Piotr Skowron and Piotr Faliszewski, AAAI-15)
- Multiple Referenda and Multiwinner Elections (joint work with Georgios Amanatidis, Nathanal Barrot, Evangelos Markakis and Bernard Ries, AAMAS-15).

11:35–12:20   **Oliver Schaudt**, University of Cologne

Single-price strategies in Stackelberg pricing games revisited

Abstract: We consider the following two-player pricing game. The second player, called *follower*, minimizes a continuous function plus a linear term over a compact subset of $\mathbb{R}^n_{\geq 0}$. The coefficients (or *prices*) in this linear term are chosen by the first player, the *leader*. The *revenue* of the leader is then the amount of the objective value that comes from the prices she set. The goal of the leader is to set the prices such that her revenue is maximized.
We give a tight lower bound on the revenue of the leader, which is achieved even if the leader chooses a single-price strategy. Moreover, we prove that it is strongly NP-hard to decide whether the optimum revenue exceeds the lower bound by an arbitrarily small factor, even if the follower minimizes a linear objective function over a matroid. Our work strengthens previous results of Briest et al. and Balcan et al.

12:30   **Lunch**