

Abstracts of invited talks in the Special Session on Logic and Games

- ▶ CRISTINA BICCHIERI, *A taste for fairness*.
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In recent years, a number of experimental games have pointed to the importance of fairness considerations in shaping players' behavior. Experiments on Ultimatum bargaining reveal that the subjects' payoff values do not reflect just their own monetary gains. Subjects seem to have a shared idea of a fair outcome, as well as a tendency to enact it. Several models have been advanced to explain the data, all of them introducing modified utility functions that either assume an individual's preference for fair outcomes, a sensitivity to the intentions of other players, or a propensity to recognize and follow established norms. I present a social norms approach and assume that, whenever a social norm exists and is made focal, individuals will have an incentive to follow it. A player's propensity to follow a norm is represented in a new kind of utility function. I will test my approach on 'anomalous' experimental data that challenge the view that subjects have simple fairness preferences, or a desire to reciprocate good (bad) behavior.

- ▶ STEVEN J. BRAMS, D. MARC KILGOUR, AND M. REMZI SANVER, *A minimax procedure for electing committees*.

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A procedure for electing committees of two or more members, called the minimax procedure, is described. While based on approval voting (AV), it does not aggregate approval votes in the usual manner. Instead of electing those candidates that get the most approval, the minimax procedure chooses the committee that minimizes the maximum "Hamming distance" to the voters (minimax outcome). It is shown that such an outcome may be diametrically opposed to the usual AV outcome, which minimizes the sum of the Hamming distances to all voters (minisum outcome). Although the minimax outcome-unlike the minisum outcome-is manipulable in theory, in practice it almost surely is not because of (i) a lack of information voters have about each others' preferences and (ii) the computational complexity of manipulating such information, even if it were available.

The minimax procedure is applied to the 2003 Game Theory Society (GTS) election of a council of 12 new members from a list of 24 candidates. The 9th and 10th biggest vote-getters would have been displaced by the 16th and 17th biggest vote-getters if the minimax procedure had been used. If the number of candidates to be elected had been endogenous rather than being fixed at 12, the minisum outcome would have been election of the five candidates that received majority approval from the 161 voters, whereas the minimax outcome would have been the election of ten candidates, two of whom would not have received the most votes. It is argued that when few if any voters cast identical AV ballots, as with true in the GTS election (there were $2^{24} = 16.8$ million possible ballots), a minimax committee will better represent the interests of all voters than a minisum committee.

- ▶ ADAM BRANDENBURGER AND H. JEROME KEISLER, *An impossibility theorem on beliefs in games*.

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A paradox of self-reference for beliefs in games is identified, which yields a game-theoretic impossibility theorem akin to Russell's paradox. An informal version of the paradox is that the following configuration of beliefs is impossible:

Ann believes that Bob assumes that

Ann believes that Bob's assumption is wrong.

This can be formalized to show that any belief model of a certain kind must have a "hole".

► ROHIT PARIKH, *Social software and the logical properties of real life procedures.*

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Social software is the study of procedures in ordinary life, carried out either by individuals or by groups, and the latter is of course the more interesting and difficult case.

Techniques from the Logic of Programs and the Analysis of Algorithms sometimes come in handy. But so do techniques from Game theory, as people's actions depend on their preferences (as well as their beliefs).

An interesting fact to observe is that the physical structures used in certain procedures have logical properties. For instance queues in real life preceded the (abstract) queues as data types, and they have the same requisite (FIFO) properties needed for fairness as does the (more convenient) mechanism of tickets. The logical properties of electoral systems are even more interesting, and some recent techniques allow us to study such systems.

In this talk we discuss individual procedures, group procedures and the flow of knowledge needed for them to work.