

# 9<sup>th</sup> Murat Sertel Workshop on Economic Design

October 30-31, 2019

**santral**istanbul Campus, Energy Museum Seminar Hall



Istanbul  
Bilgi University



October 30

09:00 - 09:30 — **Registration & Coffee**

09:30 - 09:45 — **Welcome**

09:45 - 11:15 — **SESSION 1**

**Semih Koray - Bilkent University**

**Minimal State Spaces for Implementation via Rights Structures**

*joint with Kemal Yıldız*

Implementation via rights structures introduced by Koray and Yıldız (JET, 2018) - offering an alternative and simple framework for implementation - requires the specification of a “state space” upon which the rights structures are based. The size of the state space can naturally be regarded as a particular measure for the simplicity of the construct introduced. We already know from Koray and Yıldız (2018) that every image monotonic social choice rule is implementable via an individual based rights structure. In this paper we address the question of the minimal cardinality of the state space of an individual based rights structure implementing a given social choice rule. The said minimal cardinality is characterized in terms of the “critical preference profile structure” associated with the social choice rule implemented. Perhaps more interestingly, the characterization also yields a lower bound for the cardinality of the joint message space of any mechanism Nash-implementing a Nash implementable social choice rule.

**Nuh Aygün Dalkıran - Bilkent University**

**Behavioral Implementation under Incomplete Information**

*joint with Mehmet Barlo*

We investigate implementation under incomplete information when individuals’ choices need not be rational. Our results are complementary to de Clippel (2014) [American Economic Review, 104(10): 2975-3002], which investigates the same problem under complete information.

**Mehmet Barlo - Sabancı University**

**Implementation with Missing Data**

*joint with Nuh Aygün Dalkıran*

We investigate the implementation problem when there is missing data concerning individuals’ choices. We aim to provide necessary as well as sufficient conditions for implementation, as robust as possible.

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11:15 - 11:45 — **Coffee Break**

11:45 - 12:45 — **SESSION 2**

**Huihui Ding - University of Cergy-Pontoise**

**Deliberation and epistemic democracy**

*joint with Marcus Pivato*

We study the effects of deliberation on epistemic social choice, in two settings. In the first setting, the group faces a binary epistemic decision analogous to the Condorcet Jury Theorem. In the second setting, group members have probabilistic beliefs arising from their private information, and the group wants to aggregate these beliefs in a way that makes optimal use of this information. During deliberation, each agent discloses private information to persuade the other agents of her current views. But her views may also evolve over time, as she learns from other agents. This process will improve the performance of the group, but only under certain conditions; these involve the nature of the social decision rule, the group size, and also the presence of “neutral agents” whom the other agents try to persuade.

**Ismail Sağlam - TOBB University**

### **The Effect of Awareness and Observability**

#### **on the Non-contractible Investment of a Regulated Natural Monopoly**

This paper studies the joint effect of the regulator's ex-ante awareness and ex-post ability to observe on the non-contractible investment activities of a natural monopoly with private marginal cost information. We show that the investment activities are lower when the regulator is ex-ante aware of their existence and ex-post able to observe them than when the regulator is never aware of, and never able to observe, them. This result, which points to the regulated firm's prevention of ratcheting, is in line with an earlier finding of Tirole (1986) obtained in a bargaining model of procurement with two-sided asymmetric information. We also find that the producer welfare and the social surplus is always ex-ante higher when the regulator is unaware of its investment activities than when she is aware. Moreover, our computations show that depending on the specifications of our model the unawareness of the regulator may positively affect the expected consumer and social welfares, as well.

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12:45 - 14:30 — **Lunch**

14:30 - 16:00 — **SESSION 3**

**Papatya Duman - Paderborn University**

### **On the Decomposability of the Nash Bargaining Solution: An Application to Labor Markets**

*joint with Claus-Jochen Haake & Thorsten Upmann*

In this paper, we analyze the two-dimensional Nash bargaining solution deploying a standard labor market negotiations model (see McDonald and Solow, 1981; Creedy and McDonald, 1991). We show that the two-dimensional bargaining problem can be decomposed into two one-dimensional problems such that the (Cartesian) product of the solutions of these problems replicates the solution of the two-dimensional problem if the Nash bargaining solution is applied. However, this decomposition fails for any solution concept that does not satisfy the IIA axiom. This decomposition result has significant implications for actual negotiations, as it allows for the decomposition of a multi-issue bargaining problem into a set of simpler, in particular into a set of single-issue bargaining problems. In this way, the decomposition may help facilitate negotiations in labor markets but also in other environments.

**Simon Hoof - Paderborn University**

### **On a class of linear-state differential games with agreeable bargaining solutions**

We consider n-person pure bargaining games in which the payoff space of feasible agreements is constructed via a noncooperative differential game. At the beginning of the game the agents bargain over strategies to be played during the game. An initial cooperative solution (a strategy tuple) is called agreeable if renegotiating at a later time instant yields the original solution and if it remains individually rational to stick to the initial solution. We show that the CES bargaining solution is agreeable if the strategy space is restricted to constants.

**Emin Karagözoğlu - Bilkent University**

### **Bargaining, Reference Points, and Limited Influence**

*joint with Tarık Kara and Elif Özcan-Tok*

We study the emergence of reference points in a bilateral, infinite horizon, alternating offers bargaining game. Players' preferences exhibit reference-dependence, and their current offers have the potential to influence each other's future reference points. However, this influence is limited in that it expires in a finite number of periods. Our model is inspired by the availability heuristic or retrievability bias in decisionmaking and the order effect (or the recency effect) in belief updating and intertemporal decisionmaking. We first construct a subgame perfect equilibrium that involves an immediate agreement, and study its properties. Later, we also show the existence of an equilibrium where agreement is reached with delay. We show that expiration lengths and initial reference points play a crucial role for the existence of this equilibrium.

16:00 - 16:30 — **Coffee Break**

16:30 - 18:00 — **SESSION 4**

**Shahin Baghirov** - *Koç University*

### **Managing Reputation in a Principal-Agent Problem**

In a repeated interaction, we do not only try to maximize our current payoffs, but also consider the future implications of our decision. If there is an incomplete information regarding the preferences of the counterparts, reputation concerns arise. We analyze a finitely repeated principal-agent game where the principal sets relative stakes of the interaction. There are multiple equilibria and we focus on the principal-optimal equilibrium. We show that it is optimal for the principal to start with low stakes and increase it over time if the initial reputation of the agent is sufficiently bad. In the principal-optimal equilibrium, the unbiased agent's type is not revealed until the last period and the principal does not terminate the project as long as he observes his favorite action in each period.

**Deren Çağlayan** - *BELIS & Bilkent University*

### **Group Favoritism vs. Social Efficiency Concerns: An Experimental Study**

*joint with Ayça E. Giritligil*

In this study, we focus on the interaction between in-group favouritism and overall social efficiency concerns in a resource redistribution context by employing a body of controlled laboratory experiments. We aim to investigate the conditions under which in-group favouritism dominates overall social efficiency concerns and suggests models of in-group favouring behaviour. Our results indicate a very clear group effect although the groups are arbitrarily and anonymously formed. The participants react to the social outcome of their redistribution decisions, especially to inequality, however, even under most detrimental circumstances, in-group favoritism dominates concerns for social welfare. Considering also the post-experiment survey, we observe that the subjects' preferences regarding inequality aversion, trust, profit orientation and their fathers' occupations affect their decisions regarding resource redistribution.

**Ali İhsan Özkes** - *WU Vienna*

### **The effects of strategic environment and communication on cooperation**

*joint with Nobuyuki Hanaki*

We study the determinants of cooperative behavior in two-person finitely repeated games with a Pareto-inefficient Nash equilibrium. We replicate previous experimental results on tacit collusion that suggest higher levels of cooperation under strategic complementarity than under strategic substitution. When communication is allowed, however, the effect of the strategic environment is not present. We employ natural language processing tools to investigate how subjects' communications are shaped in relation to the strategic environment. We propose the use of topic models to analyze chat records in experimental games to infer about the cooperative, or in general, strategic behavior in the lab.

October 30



**Beatrice Napolitano - LAMSADE, Université Paris-Dauphine**

**Ex-Ante versus Ex-Post Compromise**

*joint with Remzi Sanver and Olivier Cailloux*

A classical social choice setting is composed of a group of individuals, or voters, that express their preferences over a set of alternatives. The social choice problem consists in defining a procedure able to determine a collective choice for this group of voters, starting from their individual preferences. Such procedure is called social choice rule and it can be defined as a function mapping preference profiles to alternatives. Depending on the properties that this function satisfies, very different outcomes can be produced starting from the same initial profile. The plurality rule is one of the most common social choice rule and it consists in selecting, as a winner, the alternative that is considered the best by the largest number of voters forming the society. Yet, this rule can pick, as a winner, an alternative that is considered the worst by a strict majority of voters. Such outcome may be undesirable. Several procedures, the so-called compromise rules, have been proposed in the literature that aim to find a compromise. Nevertheless, all those rules can be defined as ex-ante compromises or procedural compromises, i.e., they impose over individuals a willingness to compromise but they do not ensure an outcome where everyone has effectively compromised. In this work, we approach the problem of compromise from an ex-post perspective, favoring an outcome where every voter gives up her most preferred positions if this increases equality. We propose a new notion of compromise in the social choice context, considering both cardinal and ordinal utilities.

**Umut Keskin - İstanbul Bilgi University**

**Recovering non-monotonicity problems of voting**

*joint with M. Remzi Sanver and Halil Berkay Tosunlu*

A social choice rule (SCR) is monotonic if raising a single alternative in voters' preferences while leaving the rankings otherwise unchanged is never detrimental to the prospects for winning of the raised alternative. Monotonicity is rather weak but well known to discriminate against scoring elimination rules, such as plurality with a run-off and single transferable vote. We define the minimal monotonic extension of an SCR as its unique monotonic supercorrespondence that is minimal with respect to set inclusion. After showing the existence of the concept, we characterize, for every non-monotonic SCR, the alternatives that its minimal monotonic extension must contain. As minimal monotonic extensions can entail coarse SCRs, we address the possibility of maximally refining them without violating monotonicity provided that this refinement does not diverge from the original SCR more than the divergence prescribed by the minimal monotonic extension itself. We call these refinements minimal monotonic adjustments and identify conditions over SCRs that ensure unique minimal monotonic adjustments. As an application of our general findings, we consider plurality with a run-off, characterize its minimal monotonic extension as well as its (unique) minimal monotonic adjustment. Interestingly, this adjustment is not coarser than plurality with a run-off itself, hence we suggest it as a monotonic substitute to plurality with a run-off.

**Jérôme Lang - LAMSADE, Université Paris-Dauphine**

**Portioning Using Ordinal Preferences: Fairness and Efficiency**

*joint with Stéphane Airiau, Haris Aziz, Ioannis Caragiannis, Justin Kruger and Lang Dominik Peters*

A public divisible resource is to be divided among projects. We study rules that decide on a distribution of the budget when voters have ordinal preference rankings over projects. Examples of such portioning problems are participatory budgeting, time shares, and parliament elections. We introduce a family of rules for portioning, inspired by positional scoring rules. Rules in this family are given by a scoring vector (such as plurality or Borda) associating a positive value with each rank in a vote, and an aggregation function such as leximin or the Nash product. Our family contains well-studied rules, but most are new. We discuss computational and normative properties of our rules. We focus on fairness, and introduce the SD-core, a group fairness notion. Our Nash rules are in the SD-core, and the leximin rules satisfy individual fairness properties. Both are Pareto-efficient.

11:00 - 11:30 — **Coffee Break**11:30 - 13:00 — **SESSION 6****Gizem Turna - İstanbul Bilgi University****Financial Bias Map and the Role of Financial Literacy**

This study aims to experimentally investigate (i) whether financial literacy prevents financial biases, and (ii) how financial biases are related. We focus on a collection of cognitive biases (i.e., framing, conservatism, illusion of control, endowment effect) and emotional biases (i.e., overconfidence, loss aversion, affinity). We employ two-stage questionnaires and an incentivized experiment to observe the biases that individuals have as we control the levels of financial literacy and financial education levels. The study uses a rich set of control variables, such as the economic preferences (time and risk preferences), saving/investment experiences, budgeting behaviors, financial attitudes and socio-demographic attributes (e.g., gender, age, education and income levels, etc.). The questionnaire was conducted on both students (young group) and their parents (adult group) to observe whether the focused biases are subject to parental transmission. The preliminary results suggest that young people with low level of financial literacy exhibit affinity and framing biases. However, illusion of control bias is widely detected in the young group with high level of financial literacy. Moreover, overconfidence, conservatism, and illusion of control usually co-exist although, in the literature, they are classified in different financial bias categories. We also find that age is a major determinant of financial literacy and bias level as well as of economic preferences.

**Serhat Doğan - Bilkent University****On Capacity-Filling and Substitutable Choice Rules***joint with Battal Dogan and Kemal Yıldız*

Each capacity-filling and substitutable choice rule is known to have a maximizer-collecting representation: there exists a list of priority orderings such that from each choice set that includes more elements than the capacity, the choice is the union of the priority orderings' maximizers (Aizerman and Malishevski, 1981). We introduce the notion of a critical set and constructively prove that the number of critical sets for a choice rule determines its smallest size maximizer-collecting representation. We show that responsive choice rules require the maximal number of priority orderings in their smallest size maximizer-collecting representations among all capacity-filling and substitutable choice rules. We also analyze maximizer-collecting choice rules in which the number of priority orderings equals the capacity. We show that if the capacity is greater than three and the number of elements exceeds the capacity by at least two, then no capacity-filling and substitutable choice rule has a maximizer-collecting representation of the size equal to the capacity.

**Kemal Yıldız - Bilkent University****Choice through a unified lens: The prudential model***joint with Serhat Dogan*

We present a new choice model. An agent is endowed with two sets of preferences: pro-preferences and con-preferences. For each choice set, if an alternative is the top-ranked for a pro-preference (con-preference), then this is a pro (con) for choosing that alternative. The alternative with more pros than cons is chosen from each choice set. Each preference may have a weight reflecting its salience. In this case, the probability that an alternative is chosen equals the difference between the weights of its pros and cons. We show that this model provides a unified lens through which every nuance of the rich human choice behavior can be structurally explained.

**J. Armel Momo Kenfack** - *University of Cergy-Pontoise*

**Committees under Qualified Majority Rules: The one-core stability index**

A policy proposal introduced by a committee member is either adopted or abandoned in favor of a new proposal after lengthy deliberations. If a proposal is abandoned, the committee member who introduced it does not cooperate in any effort to dominate it. The one-core is a solution concept that captures the idea above. I propose a necessary and sufficient condition for the existence of a stable alternative no matter the number of alternatives, the preference profile and the number of players in a committee game under any qualified majority rule.

**Vincent Merlin** - *University of Caen*

**Building an Experiment on Multiwinner Elections**

*joint with Sylvain Bouveret, Ayça Ebru Giritligil and Jérôme Lang*

Since the pioneer works of Plott (1967), and Florina, Morris and Plot (1978), experimental economics, either through lab experiments and or field experiments, contributed to the advancement of research on voting roles, to precise how voters react, adapt their preferences, and vote when confronted to different voting mechanisms. A stream of research aims to understand how voters act strategically in voting and election (Myerson et al., 1993; Laslier et al., 2010). Another direction is to understand how people would react to a modification of the electoral rule (Baujard et al., 2014). A third option is to elicit, under a veil of ignorance, the principles that the voters would back when confronted to a choice. In this line, the major contributions are due to Sertel and Giritligil (2003) and Giritligil and Sertel (2005). These panel studies aim to extract preferences of subjects on how to aggregate individual preferences in a social choice context. Sertel and Giritligil (2003) attempt to empirically understand public preferences concerning four social choice rules of focus, namely Plurality, Plurality with Runoff, the Majoritarian Compromise and the Borda Rule. Giritligil and Sertel (2005), on the other hand, aim to test whether the support for the Borda winner or the Condorcet winner increases when they are among the “Majoritarian Approved” candidates.

Recently, researchers working on the axiomatic analysis of committee election rules have emphasized the fact that some voting rules are more suitable in certain context than in others (Faliszewski et al., 2017). They distinguish between three types of contexts. We may wish to select a committee 1) to elect an assembly that represents the preferences of the voters 2) to shortlist a number of candidates, based on their excellence, 3) to get a menu of objects as diverse as possible, so that the tastes of each participant are somehow satisfied. But one may wonder whether these distinctions are pertinent. Our objective in this paper is to understand the principles that govern the preferences of voters in committee elections in specified and neutral contexts. To do so, we borrow the experimental protocols used by Sertel and Giritligil (2003) and Giritligil and Sertel (2005).

In this presentation, we will discuss the protocol we are currently working on, and we will comment preliminary results from a pilot.

**Jean Lainé** - *CNAM*

**Strategy-proof preference aggregation**

*joint with Onur Doğan and Gilbert Laffond*

We characterize strategy-proof Arrovian aggregation rules where strategy-proofness is defined with respect to preferences over orders (hyper-preferences) that are linear orders. Hyper-preferences are generated from linear orders over alternatives by means of a preference extension. Based on this characterization, we show that some rules that are strategy-proof with respect to the betweenness criterion (Bossert and Sprumont, 2014) or to the Kemeny distance criterion (Athanasoglou, 2016) become manipulable when all pairs of orders can be compared. Moreover, we show that only constant or dictatorial aggregation rules are strategy-proof for all hyper-preferences in a rich domain.

9<sup>th</sup>  
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on Economic Design

## October 30, 2019

09:00 - 09:30	<b>Registration &amp; Coffee</b>
09:30 - 09:45	<b>Welcome</b>
09:45 - 11:15	<b>Session 1</b>
11:15 - 11:45	<b>Coffee Break</b>
11:45 - 12:45	<b>Session 2</b>
12:45 - 14:30	<b>Lunch</b>
14:30 - 16:00	<b>Session 3</b>
16:00 - 16:30	<b>Coffee Break</b>
16:30 - 18:00	<b>Session 4</b>

## October 31, 2019

9:30 - 11:00	<b>Session 5</b>
11:00 - 11:30	<b>Coffee Break</b>
11:30 - 13:00	<b>Session 6</b>
13:00 - 14:30	<b>Lunch</b>
14:30 - 16:00	<b>Session 7</b>



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