

**Second Annual Graduate Student Conference**  
**on Social Choice and Behavioral Sciences**  
(sponsored by the Institute for Mathematical Behavioral Sciences)

**Session 1**

**Jason Kronewetter:** Decisions on a Continuum of Choices

Picture a beach on a lake. Suppose we are voting to decide on a location to have a beach party. Then every agent is choosing from a continuum of possibilities; namely, agents are choosing from every point on a circle. How would one design a procedure to aggregate agents' choices into a societal choice? I present here an impossibility theorem due to Chichilnisky, provide a resolution, and extend the theorem to a more general class of choice spaces.

**Lingfang (Ivy) Li:** Geometric Proof and Resolution of Sen's Theorem

Sen's Paretian Liberal Paradox has puzzled economists and social scientists for over three decades. In this paper, we give two different geometric proofs of Sen's theorem that illustrates the reason for the paradox: namely, that crucial information about the rationality of individuals is lost. After the reason for Sen's theorem is understood, we propose several resolutions, generated by the geometric approaches, to get around Sen's theorem and avoid a possible cyclic societal outcome.

**Session 2**

**Doug Hill:** Cooperation, Institutions, and Errors: The Leviathan versus the Champagne Fairs

This paper will examine the argument of Thomas Hobbes that an absolute sovereign is required to make us honor our contracts, in the light of examples, historical and modern, as well as game theoretic models, of cooperation in the absence of such an authority. I will examine such contracts as the prisoner's dilemma, as a worst-case model. I will then compare Hobbes' solution of changing this game by having the sovereign impose additional costs on defectors (cheaters) with repeated game solutions that use the hope of future cooperation (and fear of future defection) to encourage cooperation. I argue that such solutions can work, but informal mechanisms such as grim-trigger and tit-for-tat are vulnerable to errors. However, institutions such as law merchants and credit bureaus, are much more robust with respect to errors.

**Anna Bargagliotti:** The Solution Process

How does a student go about solving a math problem? A student must develop a sequence of ideas to lead them to a solution. This talk will explore three different approaches that attempt to explain how this sequence of ideas is developed.

**Session 3**

**Fabio Leite:** Investigating the effects of input-strength variability on reaction time.

We study the effects of input variability on choice reaction time models under the two-alternative, forced choice paradigm. We test the widely used assumption that slower errors are produced under higher input-strength variability conditions. Two experiments involving a numerosity task are presented. Our analysis, considering both the difference between mean error RT and mean correct RT and the complete RT distribution disfavors the assumption. We argue that this work presents enough evidence to render

more detailed investigation on choice-RT models and we suggest a way to modify some of the current models to accommodate our findings.

**Kevin Zollman:** Talking to Neighbors: The Evolution of Regional Meaning

In seeking to explain the evolution of social cooperation, many scholars are using increasingly complex game-theoretic models. These complexities often model readily observable features of human and animal populations. In the case of previous games analyzed in the literature, these modifications have had radical effects on the stability properties of the models. We will analyze the effect of adding spatial structure to communication games: the Lewis Sender-Receiver game and a modified Stag Hunt game. For the Stag Hunt, we find that the results depart strikingly from previous models. In all cases, the departures increase the explanatory value of the models for social phenomenon.

#### Session 4:

**Amjad Toukan:** Privately Held or Publicly Owned? Large shareholders and the struggle for Corporate Control

This paper examines the decision to go public in the presence of large and dispersed shareholders. The decision to go public and the shape of the ownership structure depend on the particular combination of concentrated and dispersed ownership that maximizes the initial owners' wealth. Our model is based on a contest in which owners/managers and large shareholders exert costly efforts to increase their probability of winning part of the value of the public firm. The outcome of the contest and the listing decision are also affected by the efficiency of the judiciary and law enforcement system.

**Arnab Mukherji:** Do Elections Abet Violent Crime?

This paper examines the relationship between democratic institutions and domestic crime. Using elections as a defining feature of democracies and controlling for social and economic determinants of crime, we explore whether crime (measured by murders per hundred thousand people) goes up during election as compared to non-election years. We show that in the entire sample of fifty-two democracies over a period of seven years, murder rate goes up in election years. However, after partitioning the data according to per capita incomes, we find that less developed countries are driving our results. Specifically, the relationship between crime and elections is positive and significant in less developed countries while there is no evidence of such relationship in the developed countries. We also examine the impact of political systems (presidential versus parliamentary) and voting rules (proportional versus plurality systems) on the incidence of domestic crime rates.

**Garrett Asay:** Negative Campaigning- A Newsworthy Strategy?

Negative campaigning has been the subject of debate in the political science literature. In a theoretical treatment, Asay-Saari (2004) show how a candidate can create a winning situation using a simple two-step strategy. By campaigning negatively over a controversial issue a candidate can break what is known in game theory as a core and attract media attention. Because negative campaigning is more conflictual than positive campaigning and because the media is attracted to conflictual events, Asay-Saari hypothesis that negative campaigning is a more newsworthy strategy than positive campaigning. The research outlined here tests this hypothesis.