

2023 OTTAWA MICROECONOMIC THEORY WORKSHOP



Location: Room 4004, Social Sciences Building
120 University Pvt, Ottawa ON K1N 6N5

Dates: September 23 and 24, 2023

SATURDAY, SEPTEMBER 23

13:00 – 14:30

1. **Alex Westkamp (University of Cologne)**
[*Optimal Sequential Implementation*](#) (with Yiqiu Chen)
2. **Lars Ehlers (Université de Montréal)**
[*On the constrained efficiency of strategy-proof random assignment*](#)
(with Christian Basteck)
3. **Umut Dur (North Carolina State University)**
[*Improving the Deferred Acceptance with Minimal Compromise*](#) (with Mustafa Oğuz Afacan, A. Arda Gitmez, and Özgür Yılmaz)

15:00 – 16:30

1. **Changwoo Park (University of Rochester)**
The Local-global Equivalence on General Networks (with Wonki Cho)
2. **Christian Trudeau (University of Windsor)**
[*Sharing queueing costs when users have options*](#) (with Ata Atay)
3. **Bettina Klaus (University of Lausanne)**
[*Strict Core Stability and Strategy-Proofness for Hedonic Games with Friend-Oriented Preferences*](#) (with Flip Klijn and Seçkin Özbilen)

17:00 – 18:00

1. **Guillaume Haeringer (City University of New York)**
Incontestable Assignments (with Benoit Decerf and Martin Van der Linden)

2. **Samson Alva (University of Texas at San Antonio)**

Will The Real Ordinal Efficiency Please Stand Up? (with Eun Jeong Heo and Vikram Manjunath)

19:00

Dinner for speakers

Play Food & Wine

1 York Street

SUNDAY, SEPTEMBER 24

8:30 – 9:00

Breakfast

9:00 – 10:00

1. **Szilvia Pàpai (Concordia University)**

Do School Choice Mechanisms Affect School Segregation (with Mutasir Chaudhury)

2. **Yuki Tamura (NYU Abu Dhabi)**

A characterization of obviously strategy-proof rules for object reallocation problems with single-peaked preferences

10:30 – 12:00

1. **Will Phan (North Carolina State University)**

School Capital, Funding, and Student Choice (with Ryan Tierney and Yu Zhou)

2. **William Thomson (University of Rochester)**

TBA

3. **Sean Horan (Université de Montréal)**

Collective choice with indecisiveness

ABSTRACTS

Optimal Sequential Implementation, Alex Westkamp (with Yiqiu Chen)

We introduce an optimality notion for sequential implementations of matching rules in priority-based allocation problems. An optimal sequential implementation (1) complies with obvious dominance Li (2017) whenever possible and (2) does not elicit more information about agents' preferences than necessary. We show that any optimal sequential implementation of a strategy-proof rule is obviously strategy-proof (OSP) whenever that rule is OSP-implementable.

We construct an optimal sequential implementation of the well-known Top Trading Cycles (TTC) algorithm. Our optimal implementation does not rely on any restrictions of the priority structure. Hence, our implementation can be applied even when the TTC-algorithm is not OSP-implementable. By contrast, we show that there may not exist an optimal sequential implementation of the (agent-proposing) deferred acceptance (DA) algorithm. We develop a weaker optimality notion that allows agents to reveal more information about their preferences than is necessary provided that this information is elicited via a decision for which obvious dominance applies. In ongoing work, we develop a weakly optimal implementation of the DA algorithm that does not rely on any restrictions of the priority structure.

On the constrained efficiency of strategy-proof random assignment, Lars Ehlers (with Christian Basteck)

We study the random assignment of indivisible objects among a set of agents with strict preferences. Here Random Serial Dictatorship is known to be only ex post efficient and there exist mechanisms that Pareto-dominate it ex ante. However, we show that there is no mechanism that is likewise (i) strategy-proof and (ii) boundedly invariant, and that Pareto-dominates Random Serial dictatorship. Moreover, the same holds for all mechanisms that are ex post efficient, strategy-proof and boundedly invariant: no such mechanism is dominated by any other mechanism that is likewise strategy-proof and boundedly invariant.

Improving the Deferred Acceptance with Minimal Compromise, Umut Dur (with Mustafa Oğuz Afacan, A. Arda Gı̄tmez, and Özgür Yılmaz)

In school choice problems, the motivation for students' welfare (efficiency) is restrained by concerns to respect schools' priorities (fairness). Even the best matching in terms of welfare among all fair matchings (SOSM) is in general inefficient. Moreover, any mechanism that improves welfare over the SOSM is manipulable by the students. First, we characterize the "least manipulable" mechanisms in this class: upper-manipulation-proofness ensures that no student is better off through strategic manipulation over the objects that are better than their assigned school. Second, we use the notion that a matching is less unfair if it yields a smaller set of students whose priorities are violated, and define minimal unfairness accordingly. We then show that the Efficiency Adjusted Deferred Acceptance (EADA) mechanism is minimally unfair in the class of efficient and upper-manipulation-proof mechanisms. When the objective

is to improve students' welfare over the SOSM, this characterization implies an important insight on the frontier of the main axioms in school choice.

The Local-global Equivalence on General Networks, Changwoo Park (with Wonki Cho)

Strategy-proofness is an incentive property requiring that no (preference) type gains by reporting any other type in the domain. The local-global equivalence (LGE) refers to the equivalence of strategy-proofness and its weakening called local strategy-proofness, which requires similar immunity to misrepresentation assuming that the agent is constrained to report "local" types relative to his true type. Generalizing an existing framework, we allow the notion of localness to be arbitrary and directed and hence the mode of manipulation to be asymmetric across different types. We provide two conditions, each of which characterizes the environments satisfying LGE: (i) strong connectedness, a refined notion of connectedness; and (ii) Property DL, a directed network adaptation of Property L by Kumar et al. (2021a). Observations from this characterization also help reveal conditions for the random version of LGE (the equivalence of strategy-proofness and local strategy-proofness for random rules). We identify a necessary condition called hyper-connectedness and a sufficient condition called Property ULLO for random LGE. Our conditions are more general than earlier ones in the literature and are satisfied by several well-known preference domains.

Sharing queueing costs when users have options, Christian Trudeau (with Ata Atay)

The fair division of queueing costs has typically been studied assuming a fixed number of machines on which agents can queue. In contrast, we suppose that agents have options regarding these machines. First, we assume that agents can change the number of machines, creating a tradeoff between waiting costs and the cost of acquiring extra machines. Second, we posit that agents are initially assigned to their neighboring machine but can travel, at a cost, to any other machine. We define cooperative games from these problems and study the existence of core allocations.

Strict Core Stability and Strategy-Proofness for Hedonic Games with Friend-Oriented Preferences, Bettina Klaus (with Flip Klijn and Seçkin Özbilen)

We study hedonic coalition formation problems with friend-oriented preferences; that is, each agent has preferences over his coalitions based on a partition of the set of agents, except himself, into "friends" and "enemies" such that (E) adding an enemy makes him strictly worse off and (F) adding a friend together with a set of enemies makes him strictly better off. Friend-oriented preferences induce a so-called friendship graph where vertices are agents and directed edges point to friends. We show that the partition associated with the strongly connected components (SCC) of the friendship graph is in the strict core. We then prove that the SCC mechanism, which assigns the SCC partition to each hedonic coalition formation problem with friend-oriented preferences, satisfies a strong group incentive compatibility property: group strategy-proofness. Our main result is that on any "rich" subdomain of friend-oriented preferences, the SCC mechanism is the only mechanism that satisfies core stability and strategy-proofness.

Will The Real Ordinal Efficiency Please Stand Up?, Samson Alva (with Eun Jeong Heo and Vikram Manjunath)

We study rules for allocating objects via lottery. Even if each agent evaluates lotteries based on expected utility, one may wish to ignore "cardinal" information and rely only on preferences over sure outcomes. Such an ordinality requirement on allocation rules may be driven by informational or, as we show, incentive constraints.

When considering ordinal allocation rules, properties like strategy-proofness, no-envy, and the equal division lower bound amount to their usual stochastic dominance versions that have been well studied in the literature. This, however, is not true of (ex ante) efficiency. We define a new version of efficiency for ordinal rules, which we call robust efficiency. We show that it is incompatible with the usual fairness concepts. In fact, it places significant limits on randomization. However, it does leave room for a rich class of random allocation rules as shown by our characterization of all robustly efficient, strategy-proof, non-bossy, boundedly invariant, and neutral rules.

Do School Choice Mechanisms Affect School Segregation?, Szivlia Pápai (with Muntasir Chaudhury)

We use a stylized model to explore whether the choice of the matching mechanism in school choice has an impact on segregation. We find that all stable mechanisms, and hence the celebrated Deferred Acceptance mechanism, as well as the Top Trading Cycles mechanism, lead to complete segregation, while the Immediate Acceptance mechanism results in less segregation, even though it has often been replaced by the Deferred Acceptance mechanism on the recommendation of theorists. We also consider the restricted cases of homogeneous school priorities and homogeneous student preferences. The results suggest that if school segregation is a concern then, despite their manipulability, the use of matching mechanisms, such as the Immediate Acceptance mechanism and the Chinese Parallel mechanisms more generally, that rely more on student preferences than on the schools' priority rankings should be reconsidered.

A characterization of obviously strategy-proof rules for object reallocation problems with single-peaked preferences, Yuki Tamura

For object reallocation problems, Bade (2019) defines a rule, the "crawler", and shows that on the domain of single-peaked preferences, this rule satisfies efficiency, the endowments lower bounds, and obvious strategy-proofness. We generalize the crawler, obtaining a family of rules that we call "crawler-jumper rules", and show that a rule satisfies efficiency, the endowments lower bounds, and obvious strategy-proofness if and only if it is a crawler-jumper rule.