

# Malachy James Gavan

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25-27 C. Ramon Trias Fargas, Barcelona, Spain

**Citizenship:** British ◦ **Date of Birth:** 25/03/1996

**Last Updated:** October 2022

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**Graduate Coordinator:** Marta Araque

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Education	<b>Ph.D. in Economics</b> Universitat Pompeu Fabra, Barcelona, Spain Advisor: Professor Antonio Penta	2019 - Present
	<b>M.Res. Economics</b> Universitat Pompeu Fabra, Barcelona, Spain	2018 - 2019
	<b>M.Sc. Economics</b> Barcelona School of Economics, Barcelona, Spain	2017 - 2018
	<b>B.Sc. Economics</b> University of Surrey, Guildford, United Kingdom	2014 - 2017

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Research Interests	Game Theory and Mechanism Design
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References	<b>Professor Antonio Penta</b> Advisor ICREA-UPF, BSE, and TSE <a href="mailto:antonio.penta@upf.edu">antonio.penta@upf.edu</a> (+34) 93 542 2551	<b>Professor Alexander Frug</b> Committee Member UPF and BSE <a href="mailto:alexander.frug@upf.edu">alexander.frug@upf.edu</a> (+34) 93 542 1174	<b>Professor Larbi Alaoui</b> UPF and BSE <a href="mailto:larbi.alaoui@upf.edu">larbi.alaoui@upf.edu</a> (+34) 93 542 2842
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Job Market Paper	<b>Negotiated Binding Agreements</b> I study binding agreements that can result from negotiation, where the agreement is over agents' behaviour in an underlying strategic environment, represented by a game. To do so, I propose a negotiation protocol where, in each round of negotiation, agents make public proposals of the action they will take. The protocol terminates when these proposals are confirmed. Confirmation results in a binding agreement and payoffs are that of the agreed action profile. I provide easy-to-check necessary and sufficient conditions for the outcomes of this game using the solution concept <i>Negotiated Binding Agreements</i> , a refinement of subgame perfect equilibria where agents only propose actions they could agree to. A full characterisation of these outcomes is provided for two-player games. I show these general conditions are robust to perturbations in the negotiation procedure including timing of proposals, proposing actions for all agents, and variation in the payoff of perpetual disagreement. Finally, I explore the implications of agents make binding agreements over how they will negotiate and show the baseline necessary and sufficient conditions generalise naturally.
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Other Working Papers	<b>Safe Implementation</b> (with A. Penta) We introduce <i>Safe Implementation</i> , a notion of implementation that adds to the standard requirements the restriction that deviations from the baseline solution concept induce outcomes that are <i>acceptable</i> . The primitives of Safe Implementation therefore include both a Social Choice Correspondence, as standard, and an Acceptability Correspondence, each mapping every state of the world to a subset of allocations. This framework generalizes standard notions of implementation, and can accommodate a variety of considerations, including robustness concerns with respect to mistakes in play, model misspecification, behavioral considerations, state-dependent feasibility restrictions, limited commitment, etc. We provide results both for general solution concepts and for the case in which agents' interaction is modelled by Nash Equilibrium. In the latter case, we identify necessary and sufficient conditions (namely, <i>Comonotonicity</i> and <i>safety-no veto</i> ) that restrict the joint behavior of the Social Choice and Acceptability Correspondences. These conditions are more stringent than Maskin's (1978), but coincide with them when the safety requirements are vacuous. We also show that these conditions are quite permissive in important economic applications, such as environments with single-crossing preferences and in problems of efficient allocation of indivisible goods, but also that Safe Implementation can be very demanding in environments with 'rich' preferences, regardless of the underlying solution concept.
	<b>Weak Coalitional Equilibrium: Existence and Overlapping Coalitions</b> (submitted) I consider Ray and Vohra (1997)'s Coalitional Equilibrium and show the methodological advantage of taking the notion of "an improvement for a group" to mean that there is a joint action of the group that induces a strict improvement in utility for all its members. This is opposed to assuming no agent in the group is worse off while one is strictly better off. I show that, when this interpretation is taken, the sufficient conditions for existence of Ray and Vohra (1997)'s Coalitional Equilibrium can be weakened. I do so by showing that the existence of Coalitional Equilibrium is implied by the existence of a Nash Equilibrium of an auxiliary game. Further to this, I show that the proof of existence can be extended to a generalisation of the concept, where groups may overlap but do not necessarily include the grand coalition.
Work in Progress	<b>Grand Coalition Rationalizability and Undominated Correlated Equilibria</b> (with P. Ennuschat) <b>Efficient Tariffs under Strategic Side Payments</b> (with M. Ptashkina)
Seminars, Conferences, and Summer Schools	<b>Presentations</b> Asian School in Economic Theory NUS, 2022 33 <sup>rd</sup> Stony Brook International Conference on Game Theory Stony Brook University, 2022 2022 Conference on Mechanism and Institution Design* NUS, 2022 International Conference Game Theory and Applications* St. Petersburg State University, 2022 The 12 <sup>th</sup> Conference on Economic Design University of Padova, 2022 BSE Ph.D. Jamboree BSE, 2020*, 2021*, <sup>†</sup> , 2022 Internal Microeconomics Seminar UPF, 2022 Student Seminar UPF, 2021, 2022
	<b>Attendance</b> 31 <sup>st</sup> Jerusalem Advanced School in Economic Theory* HUJI, 2021 (*online, <sup>†</sup> discussant)
Research Experience	<b>Research Assistant for Professor Antonio Penta</b> 2020 - Present Univeristat Pompeu Fabra, Barcelona, Spain

Teaching Experience	<b>Barcelona School of Economics</b>	
	Microeconomics I	2018, 2019
	<i>Masters Level, Instructor: Joan de Martí, Practical Sessions</i>	
	Microeconomics II	2019, 2020, 2021
	<i>Masters Level, Instructor: Joan de Martí, Practical Sessions</i>	
	Advanced Microeconomics II	2019, 2020
	<i>Ph.D. Level, Instructor: Antonio Penta, Practical Sessions</i>	
	Advanced Mathematics Brush-Up	2019, 2020, 2021
	<i>Ph.D. Level, Instructors: Piotr Zwiernik (2019, 2020) and Alexander Frug (2021), Practical Sessions and Lectures on Set Theory</i>	
	Probability and Statistics Brush-Up	2020, 2021, 2022
	<i>Masters Level, Instructor: Christian Brownlees, Practical Sessions</i>	
	<b>Universitat Pompeu Fabra</b>	
	Topics in Microeconomic Theory	2019
	<i>Undergraduate Level, Main Instructor: Francesco Cerigioni, Other Instructors: Jose Apestagua, Alexander Frug, Andreu Mas-Colell, Massimo Motta, Rosemarie Nagel, Experimental Sessions and Lectures on Risk</i>	
Honours, Awards, and Scholarships	Game Theory and Design of Institutions	2020, 2022
	<i>Undergraduate Level, with Antonio Penta, Practical Sessions and Lectures on Bayesian Games (2022)</i>	
	Mathematics for Economics and Finance	2019, 2020
	<i>Ph.D. Level, Instructor: Piotr Zwiernik, Practical Sessions</i>	
Honours, Awards, and Scholarships	Best Teaching by a Graduate Student at UPF	2021 - 2022
	<i>equally split with Zoel Martín Vilató</i>	
	UPF M.Res. Tuition Fee Waiver	2018
Academic and Departmental Services	BSE Merit Based Scholarship	2017
	<b>UPF Student Seminar Co-Organiser</b>	2020 - 2021
	<i>with Andrea Sy</i>	
Academic and Departmental Services	<b>UPF Microeconomics Reading Group Co-Organiser</b>	2020 - 2021
	<i>with Evangelia Spantidaki Kyriazi</i>	
Skills	<b>IT:</b> L <sup>A</sup> T <sub>E</sub> X, TikZ, LyX, MATLAB, Mathematica	
	<b>Languages:</b> English (Native), Spanish (Basic), British Sign Language (Basic)	