

Course Outline and Syllabus: Second-Year Advanced Microeconomics: Behavioural Economics

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Hilary Term 2010, Tuesdays 9:30-11:00, Wednesdays and Thursdays 9:00-11:00, weeks 1-3 (19-21 and 26-28 January plus 2-4 February.)

(Course materials at <http://dss.ucsd.edu/~vcrawfor/SecondYrAdvMicroBehaviouralEcon.html>, linked to my page at http://www.economics.ox.ac.uk/index.php/staff/vincent_crawford/.)

Behavioural economics is a blend of traditional neoclassical microeconomics and empirically motivated assumptions whose goal is a better understanding of economic behavior and welfare. The field can be roughly divided into two subfields: behavioural decision theory and behavioural game theory. Each differs from its mainstream counterpart by paying more attention to the psychological realism of assumptions and their consistency with empirical evidence. This year roughly half of the lectures will cover behavioural decision theory and the remaining half will cover behavioural game theory (tilting the typical mix of 2 to 1 in favor of decision theory toward game theory). My lectures will focus on identifying empirically important deviations from traditional assumptions, integrating the alternative assumptions the evidence suggests into tractable models, and using the models to reconsider standard questions in microeconomics. (Much of the empirical evidence will be experimental, but experimental methods will be considered only as needed to understand the evidence.) The approach, topics, and methods will otherwise be completely neoclassical. Thus little or no attention will be paid to models of bounded rationality whose motivations are mathematical rather than empirical, the possible evolutionary foundations of deviations from traditional assumptions, or methodology per se.

The lectures on behavioural decision theory will focus on identifying and developing the economic implications of some empirically well established and economically important deviations from the assumptions of traditional microeconomics. The topics will include reference-dependence and loss aversion in choice under uncertainty and certainty, heuristics and biases in probabilistic judgment, and (if time passes slowly enough) present-bias and time-inconsistency in intertemporal choice. This list of deviations leaves out several important topics that might be added in future years, including ambiguity aversion, overconfidence, and social preferences (altruism, envy, spite, fairness, reciprocity, etc.).

In principle, behavioural game theory includes "behavioral decisions in games". However, the theory has so far followed the compartmentalized approach of most economics by focusing on topics unique to games. These include strategic thinking, the process by which players predict others' decisions and make their own decisions in initial responses to games without clear precedents; and adaptive learning, the process by which players learn to predict others' decisions from past experience with analogous games. (One might add social preferences on the grounds that they require more than one person; but they have so far been modeled as behavioral decisions in games.) The lectures will focus on identifying empirically important patterns in thinking and learning and using the resulting models to reconsider standard questions in game theory and strategic microeconomics. The lectures omit some important topics that may be covered in future years, such as extensive-form games and bargaining.

Outline and Readings

Good books and collections of readings:

Colin Camerer, George Loewenstein, and Matthew Rabin, editors, *Advances in Behavioral Economics*, Princeton 2003: "Advances"

Daniel Kahneman and Amos Tversky, editors, *Choices, Values, and Frames*, Cambridge 2000

Richard Thaler, *The Winner's Curse: Paradoxes and Anomalies of Economic Life*, Princeton 1994.

Colin Camerer, *Behavioral Game Theory: Experiments on Strategic Interaction*, Princeton 2003: "BGT"

Thomas Schelling, *The Strategy of Conflict*, Oxford 1960 or Harvard 1980

David Kreps, *Game Theory and Economic Modelling*, Oxford 1990

Advances and BGT are well worth owning if you have a special interest in this field, but the Social Science Library (lending and reference) has at least half a dozen copies of each.

Papers: I have listed many more readings than we can cover, including some entire sub-topics that will not be discussed at all in lectures, and for which you will not be responsible. The topics that will be covered in lectures are indicated, and the most important readings are marked *. There is a longer (but less up to date) reading list on behavioural decision theory at

<http://dss.ucsd.edu/~vcrawfor/206Syllabus07.pdf>; see also Matthew Rabin's list at

http://elsa.berkeley.edu/~rabin/xyz1SYL_r.pdf (don't miss his pp. 5-6 manifesto on what behavioural economics is and is not about). There is a longer reading list on behavioural game theory at

<http://dss.ucsd.edu/~vcrawfor/LondonUCSDBonnSyllabus.html> (links active) or

<http://dss.ucsd.edu/~vcrawfor/LondonUCSDBonnSyllabus.pdf> (better for printing, but links inactive).

I. Behavioural Decision Theory

A. Overview (covered in lectures)

*Colin Camerer and George Loewenstein, "Behavioral Economics: Past, Present, Future,"

Chapter 1 in "Advances"; manuscript at <http://www.hss.caltech.edu/~camerer/ribe239.pdf>

*Matthew Rabin, "A Perspective on Psychology and Economics," *European Economic Review* 46 (2002), 657-685; <http://dx.doi.org/10.1016/S0014-2921%2801%2900207-0>.

Matthew Rabin, "Psychology and Economics," *Journal of Economic Literature* 36 (1998), 11-46; <http://www.jstor.org/stable/2564950>

Daniel Kahneman, "Maps of Bounded Rationality: Psychology for Behavioral Economics,"

American Economic Review 93 (2003), 1449-1475; <http://www.jstor.org/stable/3132137>

Teck-Hua Ho, Noah Lim, and Colin Camerer, "Modeling the Psychology of Consumer and Firm Behavior with Behavioral Economics," *Journal of Marketing Research* 43 (2006), 307-331; manuscript at <http://www.hss.caltech.edu/~camerer/JMRFinal.pdf>

Colin Camerer, pages 617-673 of Individual Decision Making, Chapter 8 in John Kagel and Alvin Roth, editors, *The Handbook of Experimental Economics*, Princeton 1995

B. Choice under Uncertainty and Certainty (covered in lectures)

1. Neoclassical decision theory

*Andreu Mas-Colell, Michael Whinston, and Jerry Green, *Microeconomic Theory*, Oxford University Press, 1995, Chapters 1, 3A-C, 6

Paul Samuelson, "Comments on the Favorable-Bet Theorem," *Economic Inquiry* 12 (1974), 345-55; reprinted in his *Collected Scientific Papers*, vol. IV, 550-560

Paul Samuelson, "Risk and Uncertainty: A Fallacy of Large Numbers," *Scientia* 98 (1963), 108-113; reprinted in his *Collected Scientific Papers*, vol. I, 153-158

2. Prospect Theory, reference dependence, and loss aversion

*Daniel Kahneman, Jack Knetsch, and Richard Thaler, "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias," *Journal of Economic Perspectives* 5 (1991), 193-206; <http://www.jstor.org/stable/1942711>

Daniel Kahneman, Jack Knetsch, and Richard Thaler, "Experimental Tests of the Endowment Effect and the Coase Theorem," *Journal of Political Economy* 98 (1990), 1325-1348; Chapter 2 in *Advances*; <http://www.jstor.org/stable/2937761>

Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47 (1979), 263-292; <http://www.jstor.org/stable/1914185> or www.hss.caltech.edu/~camerer/Ec101/ProspectTheory.pdf

*Colin Camerer, "Three cheers--psychological, theoretical, empirical--for loss-aversion," *Journal of Marketing Research*, 42 (May 2005), 129-133; manuscript at <http://www.hss.caltech.edu/~camerer/lossaversionJMR2.doc>

Colin Camerer, "Prospect Theory in the Wild: Evidence from the Field," in D. Kahneman and A. Tversky, editors, *Choices, Values, and Frames*, Cambridge: Cambridge University Press, 2002; Chapter 5 in "Advances"; <http://www.hss.caltech.edu/SSPapers/wp1037.pdf>.

*Matthew Rabin and Richard Thaler, "Anomalies: Risk Aversion," *Journal of Economic Perspectives* 15 (2001), 219-232; <http://www.jstor.org/stable/2696549>

Matthew Rabin, "Risk Aversion and Expected-Utility Theory: A Calibration Theorem," *Econometrica* 68 (2000), 1281-1292; <http://www.jstor.org/stable/2999450>

Graham Loomes and Robert Sugden, "Regret Theory: An Alternative Theory of Rational Choice under Uncertainty," *Economic Journal* 92 (1982), 805-824; <http://www.jstor.org/stable/2232669>

*Botond Köszegi and Matthew Rabin, "A Model of Reference-Dependent Preferences," *Quarterly Journal of Economics* 121 (2006), 1133-1165; <http://elsa.berkeley.edu/~botond/refdep.pdf>

Botond Köszegi and Matthew Rabin, "Reference-Dependent Risk Attitudes," *American Economic Review* 97 (2007), 1047-1073; http://elsa.berkeley.edu/~botond/refdep_risk.pdf or <http://www.jstor.org/stable/TBA> (2010)

Botond Köszegi and Matthew Rabin, "Reference-Dependent Consumption Plans," *American Economic Review* 99 (2009), 909-936; <http://elsa.berkeley.edu/~botond/drpf.pdf>

David Genesove and Christopher Mayer, "Loss Aversion and Seller Behavior: Evidence from the Housing Market," *Quarterly Journal of Economics* 116 (2001), 1233 – 1260; <http://www.jstor.org/stable/2696458>

Terrance Odean, "Are Investors Reluctant to Realize their Losses?," *Journal of Finance* 53(1998), 1775-1798; <http://www.jstor.org/stable/117424>

Juanjuan Meng, "The Disposition Effect and Expectations as Reference Point"; <http://dss.ucsd.edu/~jumeng/JobmarketpaperJJ.pdf>

Justin Sydnor, "Abundant Aversion to Moderate Risk: Evidence from Homeowners Insurance" (a.k.a. "(Over)Insuring Modest Risks"), <http://wsomfaculty.case.edu/sydnor/deductibles.pdf>

Thierry Post, Martin van den Assem, Guido Baltussen, G., and Richard Thaler, "Deal or No Deal? Decision Making under Risk in a Large-Payoff Game Show," *American Economic Review* 98 (2008), 38-71; http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID1187582_code105718.pdf?abstractid=636508&mirid=3 or <http://www.aeaweb.org/issue.php?journal=AER&volume=98&issue=1>

- Richard Thaler and Eric Johnson, "Gambling with the House Money and Trying to Break Even: The Effects of Prior Outcomes on Risky Choice," *Management Science* 36 (1990), 643-660; <http://www.jstor.org/stable/2631898>
- Jaimie Lien, "Slot Machine Stopping Decisions: Evidence for Prospect Theory Preferences?"; http://sites.google.com/site/jaimielien/research-5/Aug24_RDSrevision.pdf?attredirects=0
- Devin Pope and Maurice Schweitzer, "Is Tiger Woods Loss Averse? Persistent Bias in the Face of Experience, Competition, and High Stakes," *American Economic Review* 100 (2010), in press; http://opim.wharton.upenn.edu/~dpope/files/Pope_Schweitzer_Golf.pdf
- Colin Camerer, Linda Babcock, George Loewenstein, and Richard Thaler, "Labor Supply of New York City Cabdrivers: One Day at a Time," *Quarterly Journal of Economics* 112 (1997), 407-441; Chapter 19 in "Advances"; <http://www.jstor.org/stable/2951241>
- Vincent Crawford and Juanjuan Meng, "New York City Cabdrivers' Labor Supply Revisited: Reference-Dependent Preferences with Rational-Expectations Targets for Hours and Income"; <http://dss.ucsd.edu/~vcrawfor/cabdriver11.3.pdf>
- Jeremy Siegel and Richard Thaler, "Anomalies: The Equity Premium Puzzle," *Journal of Economic Perspectives* 11 (1997), 193-205; <http://www.jstor.org/stable/2138259>
- Shlomo Benartzi and Richard Thaler, "Myopic Loss Aversion and the Equity Premium Puzzle," *Quarterly Journal of Economics* 110 (1995), 73-92; Chapter 22 in Advances; <http://www.jstor.org/stable/2118511>
- Johannes Abeler, Armin Falk, Lorenz Goette, and David Huffman, "Reference-Dependent Preferences and Labor Supply," *American Economic Review* 100 (2010), in press; http://www.fwi.uni-bonn.de/fileadmin/Fachbereich_Wirtschaft/Einrichtungen/fwi/Armin_Falk_-_Publications/dp3939.pdf
- David Card and Gordon Dahl, "Family Violence and Football: The Effect of Unexpected Emotional Cues on Violent Behavior"; <http://dss.ucsd.edu/~gdahl/family-violence.pdf>
- Botond Köszegi and Paul Heidhues, "Competition and Price Variation when Consumers are Loss Averse," *American Economic Review* 98 (2008), 1245-1268; http://elsa.berkeley.edu/~botond/pricing_comp.pdf
- Oliver Hart and John Moore, "Contracts as Reference Points," *Quarterly Journal of Economics* 123 (2008), 1-48; <http://www.economics.harvard.edu/faculty/hart/files/Contracts%2Bas%2BReference%2BPoints%2BQJE.pdf>

C. Probabilistic Judgment (covered in lectures)

- *Amos Tversky and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185 (1974), 1124 – 1131; <http://www.jstor.org/stable/1738360>
- Dale Griffin and Amos Tversky, "The Weighing of Evidence and the Determinants of Confidence," *Cognitive Psychology* 24 (1992), 411-435; http://synapse.princeton.edu/~sam/griffin_tversky92_cognitive_psychology_weighing-evidence-confidence.pdf
- *Colin Camerer, pages 590-616 of Individual Decision Making, Chapter 8 in John Kagel and Alvin Roth, editors, *Handbook of Experimental Economics*, Princeton 1995
- Henry Blodget, "Wall Street Self-Defense: Born Suckers: The Greatest Wall Street Danger of All: You," *Slate*, December 14, 2004 (amusing optional reading) <http://dss.ucsd.edu/~vcrawfor/WallStreetBiases.html>
- Matthew Rabin, "Inference by Believers in the Law of Small Numbers," *Quarterly Journal of Economics* 117 (2002), pp. 775 – 816; <http://www.jstor.org/stable/4132489>

Matthew Rabin and Dimitri Vayanos, "The Gambler's and Hot-Hand Fallacies: Theory and Applications," *Review of Economic Studies* 76 (2009), in press.

<http://www.restud.com/uploads/papers/MS%2012141-2%20manuscript.pdf>

Leonard Mlodinow, "Meet Hollywood's Latest Genius: Then again, in 6 months he could be a loser. Box-office success is more random than you may think," *Los Angeles Times*, July 2, 2006 (amusing optional reading) <http://dss.ucsd.edu/~vcrawfor/la-tm-random27jul02,1,1850294,full.story.html>

Linda Babcock and George Loewenstein, "Explaining Bargaining Impasse: The Role of Self-Serving Biases," *Journal of Economic Perspectives* 11 (1997), 109-126; Chapter 11 in "Advances"; <http://www.jstor.org/stable/2138254>

D. Present-biased Preferences and Time-Inconsistency in Intertemporal Choice (not covered in lectures)

George Loewenstein and Richard Thaler, "Anomalies: Intertemporal Choice," *Journal of Economic Perspectives* 3 (1989), 181-193; <http://www.jstor.org/stable/1942918>

David Laibson, "Golden Eggs and Hyperbolic Discounting," *Quarterly Journal of Economics* 112 (1997), 443-478; Chapter 15 in "Advances"; <http://www.jstor.org/stable/2951242>

Shane Frederick, George Loewenstein, and Ted O'Donoghue, "Time Discounting and Time Preference: A Critical Review," *Journal of Economic Literature* 40 (2002), 351-401; Chapter 6 in "Advances"; <http://www.jstor.org/stable/2698382> or <http://www.hss.caltech.edu/~camerer/NYU/03-LowensteinODonoghueFrederick+.pdf>

Ted O'Donoghue and Matthew Rabin, "Doing it now or later," *American Economic Review* 89 (1999), 103-124; Chapter 7 in "Advances"; <http://www.jstor.org/stable/116981>

Ted O'Donoghue and Matthew Rabin, "Choice and Procrastination," *Quarterly Journal of Economics* 116 (2001), 121-160; <http://www.jstor.org/stable/2696445>

George-Marios Angeletos, David Laibson, Andrea Repetto, Jeremy Tobacman, and Stephen Weinberg, "The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation," *Journal of Economic Perspectives* 15 (2002), 47-68; <http://www.jstor.org/stable/2696556> or <http://www.hss.caltech.edu/~camerer/NYU/03-Angeletos.pdf>

Sharon Oster and Fiona Scott Morton, "Behavioral Biases Meet the Market: The Case of Magazine Subscription Prices," *Advances in Economic Analysis & Policy* 5 (2005), Article 1; <http://www.bepress.com/bejeap/advances/vol5/iss1/art1>

Botond Köszegi and Paul Heidhues, "Exploiting Naivete about Self-Control in the Credit Market," *American Economic Review* 100 (2010), in press. <http://elsa.berkeley.edu/~botond/credit.pdf>

Kfir Eliaz and Ran Spiegler, "Contracting with Diversely Naïve Agents," *Review of Economic Studies* 73 (2006), 689-714 <http://www.homepages.ucl.ac.uk/~uctprsp/DIP.pdf>

II. Behavioural Game Theory

A. Overview (covered in lectures)

- *BGT, Chapter 1, Introduction; Appendix 1.1, Basic Game Theory; and Appendix 1.2, Experimental Design; manuscript at http://dss.ucsd.edu/~vcrawfor/Camerer_Ch1intro.pdf
- *Sections 1, Introduction; 2, Theoretical Frameworks and Unresolved Questions; 3, Experimental Designs; and 7, Conclusion in ("TE") Vincent Crawford, "Theory and Experiment in the Analysis of Strategic Interaction," Chapter 7 in David Kreps and Ken Wallis, Editors, *Advances in Economics and Econometrics: Theory and Applications, Seventh World Congress*, Vol. I, Cambridge 1997; <http://dss.ucsd.edu/~vcrawfor/CrawfordThExp97.pdf>; Chapter 12 in "Advances"; manuscript also at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>.)

B. Strategic Thinking

1. Alternative models of initial responses to games (covered in lectures)

- *BGT, Appendix 1.1, Basic Game Theory
- *Miguel Costa-Gomes, Vincent Crawford, and Nagore Iriberry, "Comparing Models of Strategic Thinking in Van Huyck, Battalio, and Beil's Coordination Games," *Journal of the European Economic Association* 7 (2009), 377-387: Sections 1, Introduction; and 2, Alternative Models of Initial Responses to Games; <http://dss.ucsd.edu/~vcrawfor/CGCIJEEA17Oct08.pdf>

a. Equilibrium

- *Adam Brandenburger, "Knowledge and Equilibrium in Games," *Journal of Economic Perspectives* 6 (1992), 83-101; <http://www.jstor.org/stable/2138270>

b. Equilibrium with extensive-form refinements: backward and forward induction

- Philip Reny, "Rationality In Extensive Form Games," *Journal of Economic Perspectives* 6 (1992), 103-118; <http://www.jstor.org/stable/2138271>
- Elchanen Ben-Porath and Eddie Dekel, "Signaling Future Actions and the Potential for Sacrifice," *Journal of Economic Theory* 57 (1992), 36-51; [doi:10.1016/S0022-0531\(05\)80039-0](https://doi.org/10.1016/S0022-0531(05)80039-0)

c. Equilibrium with coordination refinements: risk-dominance and payoff-dominance

- John Harsanyi and Reinhard Selten, *A General Theory of Equilibrium Selection in Games*, MIT 1988

d. Quantal response equilibrium

- *Richard McKelvey and Thomas Palfrey, "Quantal Response Equilibria for Normal-Form Games," *Games and Economic Behavior* 10 (1995), 6-38; [doi:10.1006/game.1995.1023](https://doi.org/10.1006/game.1995.1023)
- Richard McKelvey and Thomas Palfrey, "Quantal Response Equilibria for Extensive-Form Games," *Experimental Economics* 1 (1998), 9-41; [doi:10.1007/BF01426213](https://doi.org/10.1007/BF01426213)

e. Level- k and cognitive hierarchy models

- *Miguel Costa-Gomes, Vincent Crawford, and Nagore Iriberry, "Comparing Models of Strategic Thinking in Van Huyck, Battalio, and Beil's Coordination Games," *Journal of the European Economic Association* 7 (2009), 377-387: Section 2, Alternative Models of Initial Responses to Games; <http://dss.ucsd.edu/~vcrawfor/CGCIJEEA17Oct08.pdf>
- *Colin Camerer, Teck-Hua Ho, and Juin Kuan Chong, "A Cognitive Hierarchy Model of Games," *Quarterly Journal of Economics* 119 (2004), 861-898: Sections I-III; manuscript at <http://www.hss.caltech.edu/~camerer/qjefinal6.pdf> or paper at <http://www.mitpressjournals.org/doi/abs/10.1162/0033553041502225> or <http://www.jstor.org/stable/TBA>

2. Experimental evidence on initial responses to games

a. Normal-form games (covered in lectures)

*BGT, Chapters 5, Dominance-Solvable Games; and 7, Coordination

*TE, Sections 4, Dominance and Iterated Dominance; and 5, Simultaneous Coordination

*Miguel Costa-Gomes and Vincent Crawford, "Cognition and Behavior in Two-Person Guessing Games: An Experimental Study," *American Economic Review* 96 (2006), 1737-1768: Section II.D reviews the evidence, the rest reports new evidence; <http://www.jstor.org/stable/30034993> or <http://dss.ucsd.edu/~vcrawfor/CGCAER06.pdf>; instructions, data, and slides at <http://dss.ucsd.edu/~vcrawfor/#Guess>

Dale Stahl and Paul Wilson, "On Players' Models of Other Players: Theory and Experimental Evidence," *Games and Economic Behavior* 10 (1995), 218-254; [doi:10.1006/game.1995.1031](https://doi.org/10.1006/game.1995.1031)

Rosemarie Nagel, "Unraveling in Guessing Games: An Experimental Study," *American Economic Review* 85 (1995), 1313-1326; <http://www.jstor.org/stable/2950991>

Teck-Hua Ho, Colin Camerer, and Keith Weigelt, "Iterated Dominance and Iterated Best Response in Experimental 'p-Beauty Contests'," *American Economic Review*, 88 (1998), 947-969; <http://www.jstor.org/stable/117013>

Miguel Costa-Gomes, Vincent Crawford, and Bruno Broseta, "Cognition and Behavior in Normal-Form Games: an Experimental Study," *Econometrica* 69 (2001), 1193-1235; <http://www.jstor.org/stable/2692219> or <http://dss.ucsd.edu/~vcrawfor/CGCrBr01EMT.pdf>).

Miguel Costa-Gomes and Georg Weizsäcker, "Stated Beliefs and Play in Normal-Form Games," *Review of Economic Studies*, 75 (2008), 729-762; <http://www3.interscience.wiley.com/cgi-bin/fulltext/120084319/PDFSTART> or manuscript at http://personal.lse.ac.uk/weizsack/Costa-Gomes_Weizsacker-27-04-06.pdf

b. Extensive-form games (not covered in lectures)

BGT, Chapters 4.2, Structured Bargaining; 4.3, Bargaining with Incomplete Information; 4.4, Conclusion; and 7.2, Asymmetric Players: Battle of the Sexes

TE, Sections 4.2, Ultimatum and alternating-offers bargaining; and 5.1, Signaling games; <http://dss.ucsd.edu/~vcrawfor/CrawfordThExp97.pdf>; Chapter 12 in "Advances"; or manuscript at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>.)

T. Randolph Beard and Richard Beil, "Do People Rely on the Self-interested Maximization of Others? An Experimental Test," *Management Science* 40 (1994), 252-262; <http://www.jstor.org/stable/2632764>

Alvin Roth, Vesna Prasnikar, Masahiro Okuno-Fujiwara, and Shmuel Zamir, "Bargaining and Market Behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An Experimental Study," *American Economic Review* 81 (1991), 1068-1095; <http://www.jstor.org/stable/2006907>

Richard McKelvey and Thomas Palfrey, "An Experimental Study of the Centipede Game," *Econometrica* 60 (1992), 803-836; <http://www.jstor.org/stable/2951567>

Vincent Crawford, "Introduction to Experimental Game Theory," *Journal of Economic Theory* 104 (2002), 1-15: Section 2, "Backward Induction, Social Preferences, Implementation, and Preplay Communication in Extensive-Form Games" introduces next two papers; [doi:10.1006/jeth.2001.2909](https://doi.org/10.1006/jeth.2001.2909) or <http://weber.ucsd.edu/~vcrawfor/IntroEGTSym.html>

Eric Johnson, Colin Camerer, Sankar Sen, and Talia Rymon, "Detecting Failures of Backward Induction: Monitoring Information Search in Sequential Bargaining," *Journal of Economic Theory* 104 (2002), 16-47; [doi:10.1006/jeth.2001.2850](https://doi.org/10.1006/jeth.2001.2850)

- Ken Binmore, John McCarthy, Giovanni Ponti, Larry Samuelson, and Avner Shaked, "A Backward Induction Experiment," *Journal of Economic Theory* 104 (2002), 48-88; [doi:10.1006/jeth.2001.2910](https://doi.org/10.1006/jeth.2001.2910)
- Teck-Hua Ho and Keith Weigelt, "Task Complexity, Equilibrium Selection, and Learning: An Experimental Study," *Management Science* 42 (1996), 659-679; <http://www.jstor.org/stable/2634458>
- Vincent Crawford, "A Survey of Experiments on Communication via Cheap Talk," *Journal of Economic Theory* 78 (1998), 286-298 ; [doi:10.1006/jeth.1997.2359](https://doi.org/10.1006/jeth.1997.2359)
- Russell Cooper, Douglas DeJong, Robert Forsythe, and Thomas Ross, "Alternative Institutions for Resolving Coordination Problems: Experimental Evidence on Forward Induction and Preplay Communication," 129-146 in James Friedman (ed.), *Problems of Coordination in Economic Activity*, Boston: Kluwer, 1994

c. Unstructured bargaining (not covered in lectures)

- BGT, Chapter 4.1, Unstructured Bargaining
- TE, Section 5.3, Unstructured Bargaining; <http://dss.ucsd.edu/~vcrawfor/CrawfordThExp97.pdf>; Chapter 12 in "Advances"; manuscript at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>.)
- Alvin Roth, "Bargaining Phenomena and Bargaining Theory," Chapter 2 in Roth (ed.), *Laboratory Experimentation in Economics: Six Points of View*, Cambridge, 1987
- Alvin Roth, "Toward a Focal-Point Theory of Bargaining," Chapter 12 in Roth, (ed.), *Game-Theoretic Models of Bargaining*, Cambridge, 1985

3. Applications

a. Coordination via symmetry-breaking in market-entry and Battle of the Sexes games (covered in lectures)

- *Colin Camerer, Teck-Hua Ho, and Juin Kuan Chong, "A Cognitive Hierarchy Model of Games," *Quarterly Journal of Economics*, 119 (2004), 861-898: Section III.C, Market Entry Games; manuscript at <http://www.hss.caltech.edu/~camerer/qjefinal6.pdf> or paper at <http://www.mitpressjournals.org/doi/abs/10.1162/0033553041502225> or <http://www.jstor.org/stable/TBA>
- *Vincent Crawford, "Let's Talk It Over: Coordination via Preplay Communication with Level- k Thinking," manuscript of paper presented as Keynote address, Arne Ryde Symposium on Communication in Games and Experiments, Lund University, August 2007: Section I, A Level- k Model of Tacit Coordination; <http://dss.ucsd.edu/~vcrawfor/LetsTalk13Aug07.pdf>
- Avi Goldfarb and Botao Yang, "Are All Managers Created Equal?," *Journal of Marketing Research* 46 (2009), 612-622; manuscript <http://www.rotman.utoronto.ca/~agoldfarb/managersequal.pdf>

b. Outguessing in zero-sum games with non-neutrally framed locations (covered in lectures)

- *Vincent Crawford and Nagore Iriberry, "Fatal Attraction: Saliency, Naivete, and Sophistication in Experimental Hide-and-Seek Games," *American Economic Review* 97 (2007), 1731-1750; <http://dss.ucsd.edu/~vcrawfor/#Hide> or <http://www.jstor.org/stable/TBA>
- Robert Östling, Joseph Tao-Yi Wang, Eileen Chou, and Colin Camerer, "Testing Game Theory in the Field: Swedish LUPI Lottery Games," 2009; <http://swopec.hhs.se/hastef/papers/hastef0671.pdf>

c. Coordination via structure and framing in bargaining and coordination games (probably not covered in lectures)

Thomas Schelling, *The Strategy of Conflict*, Oxford 1960 or Harvard 1980: Chapter 3, Bargaining, Communication, and Limited War, and Appendix C

Judith Mehta, Chris Starmer, and Robert Sugden, "The Nature of Salience: An Experimental Investigation of Pure Coordination Games," *American Economic Review* 84 (1994), 658-674; <http://www.jstor.org/stable/2118074>

Vincent Crawford, Uri Gneezy, and Yuval Rottenstreich, "The Power of Focal Points is Limited: Even Minute Payoff Asymmetry May Yield Large Coordination Failures," *American Economic Review* 98 (2008), 1443-1458; <http://dss.ucsd.edu/~vcrawfor/CrawfordGneezyRottenstreichAER08.pdf>

d. Coordination via structure in symmetric coordination games with Pareto-ranked equilibria (covered in lectures)

*TE, Chapter 6.3, Simultaneous coordination revisited;

<http://dss.ucsd.edu/~vcrawfor/CrawfordThExp97.pdf>; Chapter 12 in "Advances"; manuscript at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>.)

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C. Adaptive learning

1. Theory and evidence: reinforcement, beliefs-based, and experience-weighted attraction learning (covered in lectures)

- *BGT, Chapter 1, Introduction; Chapter 3, Mixed-Strategy Equilibrium Games; and Chapter 6, Learning; manuscript of Chapter 1 at http://dss.ucsd.edu/~vcrawfor/Camerer_Ch1intro.pdf
- *TE, Sections 2.3, 2.4, and 6; <http://dss.ucsd.edu/~vcrawfor/CrawfordThExp97.pdf>; Chapter 12 in "Advances"; manuscript also at <http://dss.ucsd.edu/~vcrawfor/ShortTh&Exp.pdf>
- Colin Camerer and Teck-Hua Ho, "Experience-weighted Attraction Learning in Normal Form Games," *Econometrica* 67 (1999), 827-874; <http://www.jstor.org/stable/2999459>
- Colin Camerer and Teck-Hua Ho, "Experience-Weighted Attraction Learning in Coordination Games: Probability Rules, Heterogeneity, and Time-Variation," *Journal of Mathematical Psychology* 42 (1998), 305-326; <http://dx.doi.org/10.1006/jmps.1998.1217>
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- Ido Erev and Alvin E. Roth, "Predicting how people play games: Reinforcement Learning in Experimental Games with Unique, Mixed Strategy Equilibria," *American Economic Review* 88 (1998), 848-881; <http://www.jstor.org/stable/117009>

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- *BGT, Sections 7.4, Payoff-Asymmetric Order-Statistic Games; 7.6, Applications: Path-Dependence, Market Adoption, and Corporate Culture; 8.1, Simple Signaling Games and Adaptive Dynamics; and 8.4, Conclusion
- *Vincent Crawford, "Learning Dynamics, Lock-in, and Equilibrium Selection in Experimental Coordination Games," in Ugo Pagano and Antonio Nicita, editors, *The Evolution of Economic Diversity*, London and New York: Routledge, 2001, 133-163; UCSD Discussion Paper 97-19; at <http://dss.ucsd.edu/~vcrawfor/ucsd9719.pdf>
- John Van Huyck, Joseph Cook, and Raymond Battalio (1997): "Adaptive Behavior and Coordination Failure," *Journal of Economic Behavior and Organization* 32, 483-503 (<http://www.sciencedirect.com/science/journal/01672681>)
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- H. Peyton Young, "The Evolution of Conventions," *Econometrica* 61 (1993), 57-84; <http://www.jstor.org/stable/2951778>
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- Vincent Crawford and Bruno Broseta, "What Price Coordination? The Efficiency-enhancing Effect of Auctioning the Right to Play," *American Economic Review* 88 (March 1998), 198-225; <http://www.jstor.org/stable/116825> or <http://dss.ucsd.edu/~vcrawfor/CrawBro98AER.pdf>
- Jordi Brandts and Charles Holt, "An Experimental Test of Equilibrium Dominance in Signaling Games," *American Economic Review* 82 (1992), 1350-1365; <http://www.jstor.org/stable/2117483>

3. Rule learning, imperfect analogies, and strategic teaching (not covered in lectures)

- BGT, Section 6.7, Rule Learning
- Dale Stahl, "Boundedly Rational Rule Learning in a Guessing Game," *Games and Economic Behavior* 16 (1996), 303-330; <http://dx.doi.org/10.1006/game.1996.0088>
- Vincent Crawford, "Introduction to Experimental Game Theory," *Journal of Economic Theory*, 104 (2002), 1-15 (8-12 introduce next three papers); [doi:10.1006/jeth.2001.2909](https://doi.org/10.1006/jeth.2001.2909) or <http://weber.ucsd.edu/~Evcrawfor/IntroEGTSym.html>
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