

SS 211C – ADVANCED ECONOMIC THEORY

SPRING 2005

LEEAT YARIV

CLASS MEETINGS

We will meet on Thursdays, 1PM – 4PM, in 315 Baxter Hall.

PREREQUISITES

SS201A-C. Please come and talk with me if you have not taken the 201 sequence and are interested in taking the class.

REQUIREMENTS

Formal requirements will include several problem sets and a final exam.

CONTACTING ME

Office: 312 Baxter Hall.

Feel free to e-mail me at lyariv@econ.ucla.edu to schedule a time to talk about class material or about your research interests.

COURSE WEBSITE

The syllabus, problem sets, and solutions will be posted on the class website:
<http://www.econ.ucla.edu/lyariv/SS211C.htm>

OUTLINE

In this class we will be covering some topics concerning beliefs – what they are, how they are formed, their theoretical significance, and the experimental tests of the prevalent models we will be exploring. We will also touch on some applications to political economy and financial investments.

0. Introduction: what are beliefs, distinction between beliefs concerning states of the world, other players' behavior, and the players themselves.
1. Beliefs about states: subjective probabilities and desire for flexibility.
2. Beliefs about players: iterated dominance, cognition, and some experimental observations.
3. Applications to strategic voting and some experimental observations.
4. Forming beliefs in static settings: games with communication and their application to strategic voting models.
5. Forming beliefs in dynamic settings :
 - a. Axiomatic foundations for discounted utility representation and some empirical observations.
 - b. Alternative models: habit formation, hyperbolic discounting, set-dependent utilities, belief-dependent utilities.
 - c. Foundations for alternative models: axiomatic and evolutionary.
 - d. Welfare considerations in dynamic settings – which beliefs should the policy maker take into account?
 - e. Social effects on dynamic belief formation: cascades, herding, and conformity.
6. Are beliefs really relevant? Reinforcement learning and case-based decision theory.

TEXTBOOKS

Most of the topics covered in this class could be read directly in the published paper version. However, the following books may become handy throughout the class (as well as in your career as an empirically conscious theorist). They are available for you at the book-store.

Camerer, C. F. [2003], *Behavioral Game Theory: Experiments in Strategic Interaction*, Princeton University Press.

Fudenberg, D. and Tirole, J. [1991], *Game Theory*, MIT Press.

Myerson, R. [1991], *Game Theory: Analysis of Conflict*, Cambridge University Press.

Osborne, M. J. and Rubinstein, A. [1994], *A Course in Game Theory*, MIT Press.

Thaler, R. [1992], *The Winner's Curse*, Princeton University Press.

READING LIST

1. Beliefs About States

Subjective Probabilities

* Anscombe, F. J. and Aumann, R. J. [1963], "A Definition of Subjective Probability," *Annals of Mathematical Statistics*, Vol. 34, No. 1, pp. 199-205.

* Mas-Collel, A., Whinston, M. and Green, J. [1995], *Microeconomic Theory*, Oxford University Press, Chapter 6.

Savage, L. J. [1954], *The Foundations of Statistics*, Wiley, New York, Chapters 2 and 3.

Subjective States and Desire for Flexibility

* Kreps, D. M. [1979], "A Representation Theorem for "Preference for Flexibility"," *Econometrica*, Vol. 47, No. 3, pp. 565-578 (JSTOR).

Mas-Collel, A., Whinston, M. and Green, J. [1995], *Microeconomic Theory*, Oxford University Press, Chapter 6.

2. Beliefs about players: iterated dominance, cognition, and some experimental observations

Camerer, C. F., Ho, T., and Chong, J. K. [2002], "A cognitive hierarchy theory of one-shot games: Some preliminary results," forthcoming in *The Quarterly Journal of Economics* (Camerer's website).

* Costa-Gomes, M., Crawford, V. P., and Broseta, B. [2001], "Cognition and Behavior in Normal-Form Games: An Experimental Study," *Econometrica*, Vol. 69, pp. 1193-1235 (Crawford's website).

* Fudenberg, D. and Tirole, J. [1991], *Game Theory*, MIT Press, Chapter 2.

* Nagel, R. [1995], "Unraveling in Guessing Games: An Experimental Study," *The American Economic Review* Vol. 85, No. 5, pp. 1313-1326 (JSTOR).

Osborne, M. J. and Rubinstein, A. [1994], *A Course in Game Theory*, MIT Press, Chapters 4 and 5.

3. Applications to strategic voting and some experimental observations

Austen-Smith, D. and Banks, J. [1996], "Information Aggregation, Rationality, and the Condorcet Jury Theorem," *The American Political Science Review*, Vol. 90, No. 1., 34-45 (JSTOR).

* Feddersen, T. and Pesendorfer, W. [1996], "The Swing Voter's Curse," *The American Economic Review*, Vol. 86, No. 3, pp. 408-424 (JSTOR).

Feddersen, T. J. and Pesendorfer, W. [1997], "Voting Behavior and Information Aggregation in Elections with Private Information," *Econometrica*, Vol. 65, No. 5, pp. 1029-1058 (JSTOR).

Feddersen, T. J. and Pesendorfer, W. [1998], "Convicting the Innocent: The Inferiority of Unanimous Jury Verdicts," *American Political Science Review*, Vol. 92, No. 1, pp. 23-35 (JSTOR).

* Guarnaschelli, S., McKelvey, R. C., and Palfrey, T. R. [2000], "An Experimental Study of Jury Decision Rules," *American Political Science Review*, Vol. 94, No. 2, pp. 407-423 (JSTOR).

Yariv, L. [2004], "When Majority Rule Yields Majority Ruin," mimeo (LY's website).

4. Forming beliefs in static games

Games with Communication

* Crawford, V. and Sobel, J. [1982], "Strategic Information Transmission," *Econometrica*, Vol. 50, pp. 1431-1451 (JSTOR).

* Myerson, R. [1991], *Game Theory: Analysis of Conflict*, Cambridge University Press, Chapter 6.

Applications to Voting

Austen-Smith, D. and Feddersen, T. [2002], "Abstention and Voting Rules," mimeo (available at: <http://www.kellogg.northwestern.edu/faculty/fedderse/homepage/papers/DeliberationWP2-11-08-02.pdf>).

* Gerardi, D. and Yariv, L. [2005], "Deliberative Voting," mimeo (LY's website).

5. Forming beliefs in dynamic games

a. Axiomatic foundations for discounted utility representation and some empirical observations

* Epstein, L.G. [1983], "Stationary Cardinal Utility and Optimal Growth under Uncertainty," *Journal of Economic Theory*, 31, pp.133-152.

Koopmans, T. C. [1960], "Stationary Ordinal Utility and Impatience," *Econometrica*, Vol. 28, No. 2., pp. 287-309 (JSTOR).

Lowenstein, G. and Thaler, R. H. [1989], "Anomalies: Intertemporal Choice," *Journal of Economic Perspectives*, Vol. 3, No. 4, pp. 181-193.

Prelec, D. and Loewenstein, G. [1998], "The Red and The Black: Mental Accounting of Savings and Debt," *Marketing Science*, Vol. 17, No. 4, pp. 4-28.

* Thaler, R. H., Kahneman, D., Knetsch, J. [1992], "Intertemporal Choice," *The Winner's Curse*, Princeton University Press.

b. Alternative models

Habit Formation

* Becker, G. S. Grossman, M. and Murphy, K. M. [1991], "Rational Addiction and the Effect of Price on Consumption (in Economics of Drugs)," *The American Economic Review*, Vol. 81, No. 2, Papers and Proceedings of the Hundred and Third Annual Meeting of the American Economic Association, pp. 237-241 (JSTOR).

Becker, G. S. [1998], *Accounting for Tastes*, Harvard University Press.

Bernheim, D. and Rangel, A. [2004], "Addiction and Cue-Triggered Decision Processes," forthcoming in *The American Economic Review* (Rangel's website).

Campbell, J. Y. and Cochrane, J. H. [1999], "By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior," *Journal of Political Economy*, Vol. 107, pp. 205-251 (JSTOR).

* Laibson, D. [2001], "A Cue-Theory of Consumption," *The Quarterly Journal of Economics* (Laibson's website).

Hyperbolic Discounting

Dasgupta, P. and Maskin, E. [2005], "Uncertainty and Hyperbolic Discounting," forthcoming at *The American Economic Review* (available at: <http://www.econ.cam.ac.uk/faculty/dasgupta/uncertainty3.pdf>).

Fernandez-Villaverde, J. and Mukherji, A. [2002], "Can We Really Observe Hyperbolic Discounting?," mimeo (available at: <http://www.econ.upenn.edu/~jesusfv/pennhyper.pdf>)

Laibson, D. [1995], "hyperbolic Discount Functions, Undersaving, and Saving Policy," Harvard University mimeo.

Laibson, D. [1997], "Golden Eggs and Hyperbolic Discounting," *The Quarterly Journal of Economics*, Vol. 112, No. 2, pp. 443-478 (JSTOR).

O'Donoghue, T. and Rabin, M. [1999], "Incentives for Procrastinators," *The Quarterly Journal of Economics*, Vol. 114, No. 3, pp. 769-816 (JSTOR).

* O'Donoghue, T. and Rabin, M. [1999], "Doing It Now or Later," *The American Economic Review*, Vol. 89, No. 1, pp. 103-124 (JSTOR).

O'Donoghue, T. and Rabin, M. [2001], "Choice and Procrastination," *The Quarterly Journal of Economics*, Vol. 116, No. 1, pp. 121-160.

* Rubinstein, A. [2003], "'Economics and Psychology'? The Case of Hyperbolic Discounting," *International Economic Review*, Vol. 44 (2003), pp. 1207-1216 (available at: <http://arielrubinstein.tau.ac.il/papers/HD03.pdf>).

Belief-dependent utilities: Cognitive Dissonance and Confirmatory Bias

Brunnermeier, M. and Parker, J. [2004], "Optimal Expectations," forthcoming in *The American Economic Review* (available at: http://www.princeton.edu/~markus/research/papers/optimal_expectations.pdf)

* Rabin, M. and Schrag, J. L. [1999], "First Impressions Matter: A Model of Confirmatory Bias," *Quarterly Journal of Economics*, pp. 37-82.

Yariv, L. [2005], "I'll See It When I Believe It: A Simple Model of Cognitive Consistency," mimeo (LY's website).

c. Foundations for alternative models

Dekel, E., Lipman, B., and Rustichini, A. [2001], "Representing Preferences with a Unique Subjective State Space," *Econometrica*, Vol., pp. 891-934.

Dekel, E., Lipman, B., and Rustichini, A. [2005], "Temptation-Driven Preferences," mimeo (available at: <http://people.bu.edu/blipman/Papers/draft.pdf>).

* Gul, F. and Pesendorfer, W. [2001], "Temptation and Self-control," *Econometrica*, Vol. 69, No. 6, pp. 1403-1435.

Samuelson, L. and Swinkels, J. [2004], "Information, Evolution, and Utility," mimeo (available at: <http://www.ssc.wisc.edu/~larrysam/papers/evoutil.pdf>).

d. Persistence of Alternative Models under Market and Evolutionary Pressures

Dekel, E., Ely, J., and Yilankaya, O. [2004], "Evolution of Preferences," mimeo (Ely's website).

Heifetz, A., Shannon, C., and Spiegel, Y. [2004], "What to Maximize if You Must," mimeo (Shannon's website).

* Laibson, D. and Yariv, L. [2004], "Safety in Markets: An Impossibility Theorem for Dutch Books," mimeo (LY's website).

* Sandroni, A. [2000], "Do Markets Favor Agents Able to Make Accurate Predictions?," *Econometrica*, Vol. 68, No. 6, pp. 1303-1341 (JSTOR).

e. Welfare considerations in dynamic settings

* Caplin, A. and Leahy, J. [2000], "The Social Discount Rate," NBER Working Paper 7983 (NBER website).

Harris, C. and Laibson, D. [2001], "Dynamic Choices of Hyperbolic Consumers," *Econometrica*, Vol. 69, No. 4, pp. 935-957 (Laibson's website).

Laibson, D. [1997], "Golden Eggs and Hyperbolic Discounting," *The Quarterly Journal of Economics*, Vol. 112, No. 2, pp. 443-478 (JSTOR).

f. Social effects on dynamic belief formation: cascades, herding, and conformity.

Banerjee, A. V. [1992], "A Simple Model of Herd Behavior," *The Quarterly Journal of Economics*, Vol. 107, No. 3, pp. 797-817 (JSTOR).

* Bernheim, B. D. [1994], "A Theory of Conformity," *The Journal of Political Economy*, Vol. 102, No. 5, pp. 841-877 (JSTOR).

* Bikhchandani, S., Hirshleifer, D., and Welch, I. [1992], "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades," *The Journal of Political Economy*, Vol. 100, No. 5, pp. 992-1026 (JSTOR).

6. Are beliefs really relevant?

Reinforcement Learning

Camerer, C. and Ho, T. [1999], "Experience Weighted Attraction (EWA) Learning in Normal-Form Games," *Econometrica*, Vol. 67, pp. 827-874 (JSTOR).

* Erev, I. and Roth, A. E. [1997], "Modeling How People Play Games: Reinforcement Learning in Experimental Games with Unique, Mixed Strategy Equilibria," mimeo (Roth's website).

Roth, A. E. and Erev, I. [1995], "Learning in Extensive-Form Games: Experimental Data and Simple Dynamic Models in the Intermediate Term," *Games and Economic Behavior*, Special Issue: Nobel Symposium, 8, pp. 164-212.

Case-Based Decision Theory

* Gilboa, I. and Schmeidler, D. [1995], "Case-Based Decision Theory," *The Quarterly Journal of Economics*, Vol. 110, pp. 605-639 (JSTOR).

Gilboa, I. and Schmeidler, D. [2001], *A Theory of Case-Based Decisions*, Cambridge University Press.