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Winter 2011

Economics 201: Problems in Strategic Communication

Objectives: Econ 201 (first half) is an advanced elective in game theory. The topic is models of communication. I have two goals. First, I will present an overview of models of strategic communication. I hope that this overview will be accessible to someone comfortable with basic game theory (at the level of the first-year core). Second, I will identify specific research problems. My dream is that the class and I will be able to solve some of these problems by the end of the quarter.

Organization: The class meets Monday and Wednesday from 2:00-3:20 PM. (There is no class on January 17.) My portion of the class ends on February 2.

Requirements and Grading: Your grade for the course will be an equally weighted average of the grades assigned by Starr and by me. My hope is that you will write a paper for my part of the course. The paper should expand on one of the topics of the course and, ideally, make progress on one of the research problems that we discuss. The paper is due at the end of the tenth week of classes (March 11), but students must hand in an outline of their research plan and get my approval no later than February 4. I am willing to negotiate other assessments on a case-by-case basis.

Office Hours: I encourage you to talk to me about course material. I will adjust my office hours to fit your schedule, but I promise to be available on Wednesdays from 1 -2.

Readings: The survey article that I have written "Giving and Receiving Advice" provides an overview of the topics that I hope to cover. I will either post the paper on my web page or send a copy to members of the class. The paper contains (too many) references.

Topics and References: Here is a list of topics, questions, and references. There will be changes depending on

1. Introduction

   Crawford and Sobel [13]

   Green and Stokey [23]

2. Strategic Considerations

   Question: How to formalize the notion that adding dimensions enables communication?

   Battaglini [4]

   Chakraborty and Harbaugh [10]

   Chakraborty and Harbaugh [11]

3. Refinements

   Question: How to use monotonicity and dominance to select equilibrium?

Brandenburger, Friedenberg, and Keisler [9]

Chen, Kartik, Sobel [12]

Farrell [19]

Lo [32]

4. Dynamics

Question: What is the relationship between weak dominance and dynamic arguments?

Gordon [22]

Demichelis and Ritzberger [15]

Demichelis and Weibull [16]

Sobel [34]

5. Multiple Sender Models

Questions: How to apply monotonicity refinements when there are many Senders? How to organize different notions of robustness introduced in the literature?

Ambrus and Lu [1]

Ambrus and Takahashi [2]

Battaglini [5]

Kim [29]

Krishna and Morgan [30]

Levy and Razin [31]

6. Persuasion

Questions: How sensitive are persuasion mechanisms to independent information acquisition and alternative game forms? How to persuade boundedly rational agents?

Kamenica and Gentzkow [28]

Mullainathan, Schwartzstein, Shleifer [33]

7. Pragmatics

Questions: How to formalize Gricean Maxims? Dual version: How to formalize skepticism in general disclosure games?

Is there a strategic formulation of the difference beween conative and referential functions?

Austin [3]

Benz, Jäger, and Van Rooij [6]

Blume and Board [7]

Blume and Board [8]

Dziuda [18]

Glazer and Rubinstein [21]

Grice [24]

Hernandez, Urbano, Vila [25]

Jakobson [27]

8. Complexity

Questions: Can one reproduce standard models with complexity costs rather than differences in preferences? How can one reformulate other basic notions (for example, the revelation principle)?

Cremer, Garicano, and Prat [14]

Dewatripont and Tirole [17]

Garicano and Prat [20]

Hertel and Smith [26]

References

[1] Attila Ambrus and Shi En Lu. Robust almost fully revealing equilibria in multi-sender cheap talk. Technical report, Harvard University, July 2010.

[2] Attila Ambrus and Satoru Takahashi. Multi-sender cheap talk with restricted state spaces. *Theoretical Economics*, 3(1):1–27, 2008.

[3] John L. Austin. *How to Do Things With Words*. Harvard University Press, 1975.

[4] Marco Battaglini. Multiple referrals and multidimensional cheap talk. *Econometrica*, 70(4):1379–1401, July 2002.

[5] Marco Battaglini. Policy advice with imperfectly informed experts. *Advances in theoretical Economics*, 4(1):1, 2004.

[6] Anton Benz, Gerhard Jäger, and Robert Van Rooij. An introduction to game theory for linguists. In Anton Benz, Gerhard Jäger, and Robert Van Rooij, editors, *Game Theory and Pragmatics*, chapter 1, pages 1–82. Palgrave MacMillan, Houndmills, Basingstoke, Hampshire, 2005.

[7] Andreas Blume and Oliver J. Board. Intentional vagueness. Technical report, University of Pittsburgh, August 2008.

[8] Andreas Blume and Oliver J. Board. Language barriers. Technical report, University of Pittsburgh, November 30 2009.

[9] Adam Brandenburger, Amanda Friedenberg, and H. Jerome Keisler. Admissibility in Games. *Econometrica*, 76(2):307–352, 2008.

[10] Archishman Chakraborty and Rick Harbaugh. Comparative cheap talk. *Journal of Economic Theory*, 132(1):70–94, 2007.

[11] Archishman Chakraborty and Rick Harbaugh. Persuasion by cheap talk. *American Economic Review*, 100(5):2361–82, 2010.

[12] Ying Chen, Navin Kartik, and Joel Sobel. On the robustness of informative cheap talk. *Econometrica*, 76(1):117–136, January 2008.

[13] Vincent P. Crawford and Joel Sobel. Strategic information transmission. *Econometrica*, 50(6):1431–1451, November 1982.

[14] Jacques Cremer, Luis Garicano, and Andrea Prat. Language and the theory of the firm. *The Quarterly Journal of Economics*, 122(1):373–407, 2007.

[15] Stefano Demichelis and Klaus Ritzberger. From evolutionary to strategic stability. *Journal of Economic Theory*, 113(1):51–75, 2003.

[16] Stefano Demichelis and Joërgen W. Weibull. Language, Meaning, and Games: A Model of Communication, Coordination, and Evolution. *The American Economic Review*, 98(4):1292–1311, 2008.

[17] Mathias Dewatripont and Jean Tirole. Modes of Communication. *Journal of Political Economy*, 113(6):1217–1238, 2005.

[18] Wioletta Dziuda. Strategic argumentation. Technical report, Northwestern University, May 2008.

[19] Joseph Farrell. Meaning and credibility in cheap-talk games. *Games and Economic Behavior*, 5(4):514–531, October 1993.

[20] Luis Garicano and Andrea Prat. Organizational economics with cognitive costs. Technical report, London School of Economics, October 2010.

[21] Jacob Glazer and Ariel Rubinstein. A study in the pragmatics of persuasion: A game theoretical approach. *Theoretical Economics*, 1:395–410, June 2006.

[22] Sidartha Gordon. Iteratively stable cheap talk equilibrium. Technical report, Université de Montréal, December 2008.

[23] Jerry R. Green and Nancy L. Stokey. A two-person game of information transmission. *Journal of Economic Theory*, 135(1):90–104, 2007.

[24] H. Paul Grice. Logic and conversation. In *Studies in the Way of Words*, chapter 2, pages 22–40. Harvard University Press, Cambridge, 1989.

[25] Penélope Hernández, Amparo Urbano, and José E. Vila. Nash equilibrium and information transmission coding and decoding rules. Technical report, University of Valencia, July 2010.

[26] Johanna Hertel and John Smith. Not so cheap talk: Costly and discrete communication. Technical report, Rutgers University-Camden, June 2010.

[27] Roman Jakobson. Closing Statements: Linguistics and poetics. In Thomas A. Sebeok, editor, *Style in Language*, pages 350–377. Cambridge: MIT Press, 1960.

[28] Emir Kamenica and Matthew Gentzkow. Bayesian persuasion. *American Economic Review*, forthcoming.

[29] Chulyoung Kim. Non-robustness of fully revealing equilibria in cheap talk game. Technical report, UCSD, 2010.

[30] Vijay Krishna and John Morgan. Asymmetric information and legislative rules: Some amendments. *American Political Science Review*, 95(2):435–452, June 2001.

[31] Gilat Levy and Ronny Razin. On the limits of communication in multidimensional cheap talk: a comment. *Econometrica*, 75(3):885–893, May 2007.

[32] Pei-Yu Lo. Common knowledge of language and iterative admissibility in a sender-receiver game. Technical report, Brown University, October 2006.

[33] Sendhil Mullainathan, Joshua Schwartzstein, and Andrei Shleifer. Coarse thinking and persuasion. *Quarterly Journal of Economics*, 123(2):577–619, 2008.

[34] Joel Sobel. Evolutionary stability and efficiency. *Economics Letters*, 42:301–312, 1993.