

**Lectures on Contract and Mechanism Design**  
**ETH Zurich, 18-21 October 2010**  
**Joel Watson**

This series of lectures will survey some of the prominent concepts and issues in the recent contract-theory literature. Relevant tools in bargaining and mechanism-design theory will also be covered, and a few applications will be discussed. Students are asked to read the lecture notes and some journal articles; no textbook will be used.

Lecture schedule: Monday, Tuesday, and Wednesday (18-20 October) from 10:15 to 12:45; Thursday (21 October) from 12:00 to 14:00.

The lectures will cover several of the following topics:

1. Basic bargaining theory (cooperative models, non-cooperative models, relation), M.
2. Team production models, M-T.
3. Basics of mechanism-design theory, methodology for settings of complete but unverifiable information, T-W.
4. Contracting and renegotiation with two players and complete but unverifiable information, the hold-up problem, W-T.

If time allows, Watson will also briefly review some topics on relational contracts, externalities, and coalitions. Watson's presentation in the regular theory workshop (on Monday) will feature recent work on modeling relational contracting.

## Relevant/Representative Papers

(not a comprehensive list; students are encouraged to read the items marked with an asterisk)

### Surveys/books

Stole, L., “Lectures on the Theory of Contracts”  
(<http://faculty.chicagobooth.edu/lars.stole/papers/lectures.pdf>)

Jackson, M. “A Crash Course in Implementation Theory,” *Social Choice and Welfare*, 18 (2001): 655-708.

Myerson, R., *Game Theory: Analysis of Conflict*, Harvard University Press, 1991.

MacLeod, W.B., “Reputations, Relationships, and Contract Enforcement,” *Journal of Economic Literature* 95 (2007): 595-628.

Bolton, P. and M. Dewatripont, *Contract Theory*, MIT Press, 2005.

### Papers by topic

#### *1. Basic bargaining theory*

\*Rubinstein, A., “Perfect Equilibrium in a Bargaining Model,” *Econometrica* 50 (1982): 207-211.

\*Nash, J., “The Bargaining Problem,” *Econometrica* 18 (1950): 155-162.

\*Binmore, K., A. Rubinstein and A. Wolinsky, “The Nash Bargaining Solution in Economic Modeling,” *RAND Journal of Economics* 17 (1986): 176-188.

#### *2. Team production models*

\*Holmström, B., “Moral Hazard in Teams,” *Bell Journal of Economics* 13 (1982): 324–340.

\*Legros, P. and S. Matthews, “Efficient and Nearly-Efficient Partnerships,” *Review of Economic Studies* 68 (1993): 599–611.

Rahman, D. and I. Obara, “Mediated Partnerships,” University of Minnesota, draft (2009).  
(<http://www.econ.umn.edu/~dmr/partners.pdf>)

Bull, J. and J. Watson, “Evidence Disclosure and Verifiability,” *Journal of Economic Theory* 118 (2004): 1-31.

Kartik, N. and O. Tercieux, “Implementation with Evidence: Complete Information,” working paper  
([http://www.columbia.edu/~nk2339/Papers/implementation\\_evidence.pdf](http://www.columbia.edu/~nk2339/Papers/implementation_evidence.pdf)).

Ben-Porath, E. and B. L. Lipman, "Implementation and Partial Provability," draft, Boston University, April 2009. (<http://people.bu.edu/blipman/Papers/current-proof.pdf>)

Eswaran and Kotwal, "The moral hazard of budget-breaking." *Rand Journal of Economics* 14 (1984): 579–581.

Baliga, S. and T. Sjöström, "Contracting with Third parties," *AEJ: Microeconomics*. 1 (2009): 75-100. (<http://www.atypon-link.com/doi/abs/10.1257/mic.1.1.75>)

Bull, J., "Third-Party Budget Breakers and Side Contracting in Team Production." (<http://www.fiu.edu/orgs/economics/wp2009/09-09.pdf>)

### 3. Basics of mechanism-design theory

\*Watson, J. "Notes on Mechanism Design and Contract," Lecture notes (2010).

Maskin, E., "Nash Equilibrium and Welfare Optimality," *Review of Economic Studies* 66 (1999): 23-38.

Maskin, E. and J. Moore, "Implementation and Renegotiation," *Review of Economic Studies* 66 (1999): 39-56.

Segal, I. and M. Whinston, "The Mirrlees Approach to Mechanism Design with Renegotiation (with Applications to Hold-Up and Risk-Sharing)," *Econometrica* 70 (2002): 1-45.

### 4. Contracting and renegotiation with two players and complete but unverifiable information

\*Watson, J. "Notes on Mechanism Design and Contract," Lecture notes (2010).

Klein, B., R. Crawford and A. Alchian, "Vertical Integration, Appropriable Rents and the Competitive Contracting Process," *Journal of Law and Economics* 21 (1978): 297-326.

Williamson, O. E., *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: Free Press, 1975.

Williamson, O. E., "Transaction Cost Economics: The Governance of Contractual Relations," *Journal of Law and Economics* 22 (1979): 233-261.

Grossman, S. and O. Hart, "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration," *Journal of Political Economy* 94 (1986): 691-719.

Grout, P., "Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach," *Econometrica* 52 (1984): 449-460.

Hart, O. and J. Moore, "Incomplete Contracts and Renegotiation," *Econometrica* 56 (1988): 755-785.

Nöldeke, G. and K. Schmidt, "Option Contracts and Renegotiation: A Solution to the Hold-Up Problem," *RAND Journal of Economics* 26 (1995): 163-179.

Che, Y.-K. and D. Hausch, "Cooperative Investments and the Value of Contracting," *American Economic Review* 89 (1999): 125-147.

Segal, I., "Complexity and Renegotiation: A Foundation for Incomplete Contracts," *Review of Economic Studies* 66 (1999): 57-82.

Hart, O. and J. Moore, "Foundations of Incomplete Contracts," *Review of Economic Studies* 66 (1999): 115-138.

Watson, J., "Contract, Mechanism Design, and Technological Detail," *Econometrica* 75 (2007): 55-81.

Watson, J., "Contract and Mechanism Design in Settings with Multi-Period Trade," 2006 working paper.

Evans, R., "Simple Efficient Contracts in Complex Environments," *Econometrica* 76 (2008): 459-491.

Watson, J. and C. Wignall, "Hold-Up and Durable Trading Opportunities," 2009 working paper.

Buzard, K. and J. Watson, "Contract, Renegotiation, and Hold Up: Results on the Technology of Trade and Investment," 2010 working paper.

Sloof, R., H. Oosterbeek, and J. Sonnemans, "Does Making Specific Investments Unobservable Boost Investment Incentives?" *Journal of Economics & Management Strategy* 16 (2007): 911-942.

Schmitz, P., "Information Gathering, Transaction Costs, and the Property Rights Approach," *American Economic Review* 96 (2006): 422-434.

## 5. Relational contracts

Bull, C. "The Existence of Self-Enforcing Implicit Contracts.," *Quarterly Journal of Economics* 102 (1987): 147-59.

Crawford, V., "Long-term Relationship Governed by Short-term Contracts," *American economic Review* 78 (1988): 485-499.

Fudenberg, D., B. Holmstrom, and P. Milgrom, "Short-term Contracts and Long-term Agency Relationships" *Journal of Economic Theory* 51 (1990): 1-31.

Pearce, D. and E. Stacchetti, "The Interaction of Implicit and Explicit Contracts in Repeated Agency." *Games and Economic Behavior* 23 (1998): 75-96.

Ramey, G. and J. Watson, "Contractual Fragility, Job Destruction, and Business Cycles," *Quarterly Journal of Economics* 112 (1997): 873-911.

Che, Y.-K. and S.-W. Yoo, "Optimal Incentives for Teams," *American Economic Review* 91 (2001):

525-41.

Baker, G., R. Gibbons, and K. Murphy, "Relational Contracts and the Theory of the Firm," *Quarterly Journal of Economics* 117 (2002): 39-84.

Levin, J., "Relational Incentive Contracts," *American Economic Review* 93 (2003): 835-857.

Rayo, L., "Relational Incentives and Moral Hazard in Teams," *Review of Economic Studies* 74 (2007): 937-963.

Watson, J., "Contract and Game Theory: Basic Concepts for Settings with Finite Horizons," 2006 working paper.

Miller, D. and J. Watson, "A Theory of Disagreement in Repeated Games with Renegotiation," draft (2010).

Kranz, S. and S. Ohlendorf, "Renegotiation-Proof Relational Contracts with Side Payments," University of Bonn working paper (2009).

Halac, M., "Relational Contracts and the Value of Relationships," Columbia Business School (2009).

Halac, M., "Relationship Building," Columbia Business School working paper (2009).

### 5. Externalities and coalitions

\*Bernheim, D. and M. Whinston, "Common Agency," *Econometrica* 54 (1986): 923-942.

Bergemann D. and J. Valimaki, "Dynamic Common Agency," *Journal of Economic Theory* 111 (2003): 23-48.

Prat and Rustichini, "Games Played Through Agents," *Econometrica* 71 (2003): 989-1026.

\*Galasso, "Multi-Agent and Common Agency Games with Complete Information: A Survey," draft (2004).

Segal, "Contracting With Externalities," *Quarterly Journal of Economics* 114 (1999): 337-388.

\*Martimort, D., "Multi-Contracting Mechanism Design," Toulouse, 2009.

Peters, M. and B. Szentes, "Definable and Contractible Contracts," 2008.

Gomes, A. "Multilateral Contracting with Externalities," *Econometrica* 73 (2005): 1329-1350.

Genicot, G. and D. Ray, "Contracts and Externalities: How Things Fall Apart," *Journal of Economic Theory* 131 (2006): 71-100.

Galasso, A., "Coordination and Bargaining Power in Contracting with Externalities," *Journal of*

*Economic Theory* 143 (2008): 558–570.

Martimort, D. and L. Stole, “Contractual Externalities and Common Agency Equilibria,” *Advances in Theoretical Economics* 3 (2003), Article 4.

Möller, M., “The Timing of Contracting with Externalities,” *Journal of Economic Theory* 133 (2007): 484–503.

Ray, D. and R. Vohra, “Equilibrium Binding Agreements,” *Journal of Economic Theory* 73 (1997): 30-78.

Bloch, F. and A. Gomes, “Contracting with Externalities and Outside Options,” *Journal of Economic Theory* (2005?).

Zhang, L. and L. Xue, “Bidding and Sequential Coalition Formation with Externalities,” 2007.

De Fontenay, C. C. and J. S. Gans, “Bilateral Bargaining with Externalities,” University of Melbourne, 2007.

Lippert, S. and G. Spagnolo, “Networks of Relations,” University of Mannheim, 2004.

Nieva, R., “Coase and Aumann-Myerson’s solution for Network Formation Games: Misleading Policy Implications,” University of Minnesota, 2002.

[others to be added]