

K.A. Konrad, January 2016

Strategy and Dynamics in Contests

Course objective

There are many types of interaction in which players expend effort in trying to get ahead of their rivals. Such interactions include marketing and advertising by firms, litigation, relative reward schemes in firms, beauty contests by firms and rent seeking for rents allocated by a public regulator, political competition, patent races and entertainment activities such as sports. Unpleasant events such as military combat, war and civil war are also some of the examples. These types of interaction have been studied in the field of *contest theory*. The purpose of this mini course is to give a theory guided introduction into this area of research, focussing on the underlying structure of this type of competition and on the strategic and dynamic aspects of such games.

Specific requirements

Knowledge on basic microeconomic theory and game theory tools at the level of a standard masters course is required.

Time schedule

There will be 7 lectures in 4 days. The first three days have two lectures per day, the fourth day has 1 lecture. Each lecture consists of a double hour. The timing of these lectures is as follows:

Tuesday, April 12, 2016, 10-12 and 14-16

Wednesday, April 13, 2016, 10-12 and 14-16

Thursday, April 14, 2016, 10-12 and 16-18

Friday, April 15, 10-12.

Structure, topics covered and some suggested reading

Lectures 1+2 Introduction, definition and types of contests

- 1.1 Definition and areas of application
- 2.2 The first-price all-pay auction
- 2.2 The Tullock contest
- 2.3 Additive noise

Lecture 3: Timing and Participation, Contest Structure, Contest Design

- 3.1 Endogenous timing
- 3.2 Participation
- 3.3 Exclusion
- 3.4 Delegation
- 3.5 Structure of prizes

Lecture 4: Externalities and group contests

- 4.1 Identity dependent externalities
- 4.2 Sabotage
- 4.3 Information externalities
- 4.4 Group contests for a public good
- 4.5 Intergroup contests and sharing rules
- 4.6 Intra-group conflict

Lecture 5: Alliances in conflict

- 5.1 Free-riding, future conflict and selection
- 5.2 Synergies, in-group favoritism
- 5.3 Experimental results

Lecture 6: Dynamic battles

- 6.1 Elimination tournaments
- 6.2 The race
- 6.3 The tug-of-war
- 6.4 Iterating incumbency fights

Lecture 7: Why fight?

- 7.1 Incomplete information and bargaining in the shadow of conflict
- 7.2 Time consistency issues
- 7.3 Further aspects

Preliminary list of reading material

Much of the material in the course will be covered by the book

Konrad, Kai A., 2009, *Strategy and Dynamics in Contests*, Oxford University Press.

A preliminary list of additional reading material is as follows:

Baye, Michael R., Dan Kovenock and Casper deVries, 1993, Rigging the lobbying process: an application of the all-pay auction, *American Economic Review* 83, 289-294.

Baye, Michael R., Dan Kovenock and Casper deVries, 1996, The all-pay auction with complete information, *Economic Theory* 8, 291-305.

Herbst, Luisa, Kai A. Konrad and Florian Morath, 2016, Balance of power and the propensity of conflict, *Games and Economic Behavior* (forthcoming).

Lazear, Edward P., 1995, *Personnel Economics*, MIT Press, Cambridge, pp. 25-37.

Fearon, James D., 1995, Rationalist explanations for war, *International Organization* 49(3), 379-414.

McBride, Michael and Stergios Skaperdas, 2014, Conflict, settlement, and the shadow of the future, *Journal of Economic Behavior and Organization* 105, 75-89.

Powell, Robert, 2002, Bargaining theory and international conflict, *Annual Review of Political Science* 5, 1-30.

Tullock, Gordon, 1980, Efficient rent seeking, in: J.M. Buchanan, R.D. Tollison and G. Tullock, *Toward a Theory of the Rent-seeking Society*, Texas A&M University Press.

Wittman, Donald, 2009, Bargaining in the shadow of war: When is a peaceful resolution most likely?, *American Journal of Political Science* 53(3), 588-602.