Behavioural game theory
Pro-social preferences and strategic interactions

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Type: CogSci research course, fall term, 2014
Level: Research course, 2 credits
Class: Thursdays 13:30 – 15:10
Hattyu u. 14, 4th floor, Students’ room

Course description
What decisions do we take when they involve others’ choices and welfare?
We will read and discuss papers about the psychological factors that underpin decision-making, focusing on decisions taken when interacting with others. We will see that these decisions depend on social preferences, which we will attempt to specify. The decisions taken when interacting with others also depend on how others are predicted to behave. We will investigate how these predictions are formed and their effects on decision-making.

The course will have three parts:
1. An introduction to decision theory and behavioural economics
2. Studies on other-regarding preferences
3. Studies on strategic decision making

Learning outcome
- Acquaintance with the problems and methods of behavioural economics, especially concerning
  - the study of pro-social motives
  - bounded rationality (biases and adaptive heuristics)
- Knowledge about how to model decision making in strategic situations.

At the end of the course, students should master a number of concepts and models used in decision sciences and game theory, such as ‘preference’, utility function, maximisation of expected utility, and Nash equilibrium. They will know about a number of findings in behavioural economics: the most famous biases, such as the ‘sunk cost fallacy’, and theories of social preferences, such as inequity aversion. Last but not least, they will become familiar with the experimental method used in behavioural economics.

Course requirements
Two one-page essays: the essays will consist of an empirical hypothesis about motivation and/or cognition at work when taking a decision, and an experimental protocol (or the description of a computer simulation, or a mathematical model) meant to test the hypothesis.

60% of the final grade

- Some coursework: solving some exercises in decision and game theory.
  20% of the final grade.
- Articles presentations and participation to the class. Students will be asked to write hands-out and stimulate discussion during two sessions with discussion format.
  20% of the final grade.

Homework due: Exercises will be due the week after they are given. The first essay should be handed in before week 8, and the second essay should be handed in before week 12.

Online platform: For reason of convenience, the material of the course will be stored on my website (rather than the ceu e-learning site) at the URL: http://christophe.heintz.free.fr/bgt/

COURSE SCHEDULE

Part 1: Issues in behavioural economics

1. Decision theory: a crash course

Goal: introduce the model of rational decision making, or homo economicus and specify the interest of the model for psychologists. We will review the following issues:
   - The role of incentives and cost-benefit analysis
   - Theory of revealed preferences: explicit goals, implicit motivations, or mere dispositions (evolutionary function)?
   - Taking risks into account

Main readings:
  p.15-33 from:

  Chapter 1 of:

To go further:
  Any introductory textbook on micro-economics. Including:
2. Some results in behavioural economics

Goal: Illustrate the work of behavioural economics with a set of examples showing “predictable irrationality” and ways to test and theorise such departures from rational choice.

- Ignorance of the base rate
- Conjunction fallacy
- Loss aversion (is not risk aversion)
- The attractiveness of “free”
- Sunk cost fallacy
- Hyperbolic discounting
- Crowding out: an intro to social preferences

Reading

Part 2: Social preferences—an account of pro-social behaviour?

3. Models of social preferences: inequity aversion, social welfare, competition

Goal: Introducing the standard methods for investigating pro-social preferences, and the main models specifying these preferences with utility functions.

Main reading

Supplementary readings:


Camerer (2003) p. 43 to 101

4. Reciprocity

Main reading

Supplementary readings
Outcome vs. intention-based preferences


**Strong vs. weak reciprocity**


**Evolutionary considerations**


5. Guilt aversion, aversion to disappointing

**Main reading**


**Supplementary readings**


**To go further: models**


6. Eyes cues and other framing effects

Main readings

Supplementary readings
On eye-cues
Fehr E., Schneider F. (2009) Eyes are on us, but nobody cares: Are eye cues relevant for strong reciprocity? Proceedings of the Royal Society B: Biological Sciences, 277(1686), p. 1315-1323


How much is due to framing?


7. Cultural variation and the construction of pro-social preferences

Main readings

Supplementary readings


Part 3: Game theory and strategic interactions

8. Game theory: a crash course

Goal: as the name indicates, we’ll try to acquire the main notions and techniques of game theory in just one session...

- Example of games
- Dominance-solvable games
- Mixed strategy
- Nash equilibria

Reading: any textbook in game theory. For instance:


9. Beliefs in social interactions

Main reading

Further readings

10. Eductive reasoning

Main reading

To go further


11. How to coordinate: Shelling games
Main reading

Further readings


12. Group decision-making

Main reading

To go further
TBA