



Think in games!

Enhance your (students') critical thinking using game theory

Guest lecture by Vincent Versluis
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overtref jezelf

About this guy:



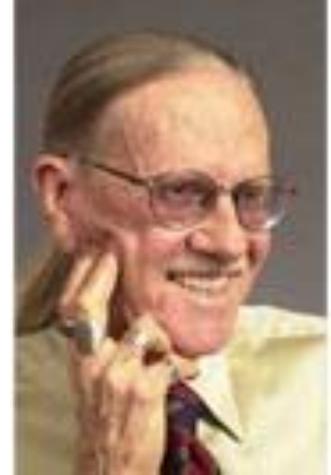
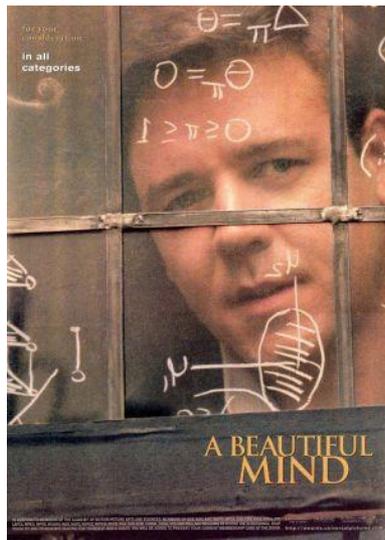
- Lecturer at Rotterdam University of Applied Sciences
 - Risk Management
 - Behavioural Economics
 - Game Theory

- Research
 - Combining risk management and behavioural economics
 - Game theory

What is game theory?

What is game theory? (1)

- Nobel Prize awarded science
 - Vernon L. Smith (economic analysis)
 - John Forbes Nash (contributions to game theory)
 - Reinhard Selten (contributions to game theory)
- Film about John Forbes Nash: "A Beautiful Mind"



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What is game theory? (2)

- UMTS
- Cuban missile crisis



What is game theory? (3)

- Method to study strategic situations
 - Additional insights lead to a(nother) solution
- What is a strategic situation?
 - What is it not?
 - No situation without effects on other players
 - No situation with only one player
 - It is something in between
 - A few players
 - Actions affect other players

What is game theory? (4)

- Where do we find game theory?
 - In any situation where there are players with choices
 - In any situation where we can make a rational choice
 - Examples: Economics, politics, law, biology
 - In the classroom



Take it or leave it

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Take it or leave it (1)



- Random couple
- Divide 5 coins
 - First player proposes a division of the coins
 - Second player accepts or declines the offer
 - Accepting leads to the 5 coins being divided as proposed
 - Declining leads to neither player gaining anything
- This is the ultimatum game
 - Accept or decline the "ultimatum"



Take it or leave it (2)

- What makes a game a game?
 - **Players**
 - 2, A and B
 - **Choices**
 - A divides, B accepts or declines
 - **Results**
 - How many coins are won
 - How the result is perceived



Take it or leave it (3)

- Why did you choose a strategy?
 - What makes me happy?
 - Can we cooperate?
 - What is the social norm?
 - What does the other player do?
 - I just randomly pick a choice

- What do we miss?
 - A **goal**, the last ingredient

Take it or leave it (4)

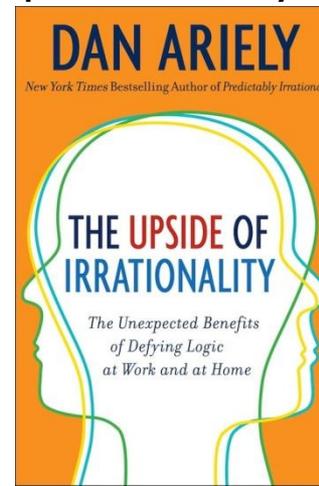
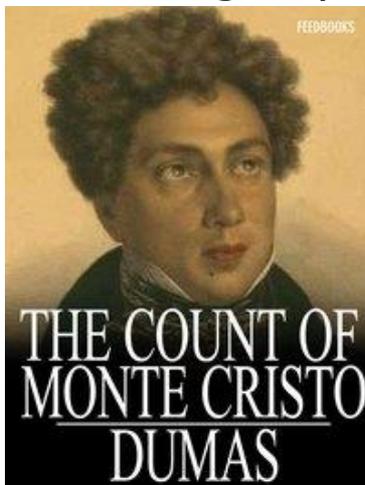
- What is the goal of the players?
 - Just make some money
 - Come out better than the other
 - Fight injustice
- What does the "rational" human love?
 - Money!





Take it or leave it (5)

- The ultimatum game in the real world
 - People do not like to accept injustice
 - People might have sense of stripped honour
- The case for revenge
 - People decline offers
 - During experiments people actually pay to decline offers





Take it or leave it (6)

- Homo economicus: man is rational and constant
 - Look at the possible results and then choose

- Homer sapiens: man is not very rational or constant
 - Same experiment in 15 different cultures
 - Every culture played differently



What is game theory?

Continued

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What is game theory? (5)

- What is the goal?
 - There is not just an economic goal
 - People also want honesty
 - Emotions can influence these goals
 - And thus choices made
 - Cooperation is possible to reach the goal
 - But you have to trust people

- Understand someone's goals
 - Understand which decision people make
 - Understand why people make that decision

What is game theory? (6)

- Think about strategic situations
 - School projects
- Which goals do stakeholders have?
 - Short term goals (credit points for students)
 - Long term goals (added value for company)
- How are results perceived?
 - Is it just about passing or do you care about the grade?
- What do you do and what do others do?
 - How is work divided?

Players
Goals

Results

Choice

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What is game theory good for?

- Game theory for students
- Students benefit from game theory
 - Application to strategic situations
 - Spontaneous classroom discussions
 - Getting to know one another
- And who doesn't like playing games anyway?



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