Other Regarding Behavior & Economic Game Theory

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A Little About Me

- Evolutionary Social Scientist
- I Study Cooperation
- I switch back and forth between Biological, Anthropological, Psychological, and Economic terms

Let's Play A Game

- You Have 1 bonus point to play with and you have been paired anonymously with a classmate
- You can Choose to
  - A) Keep it - You keep your point
  - B) Donate it - Your Partner gets 3 bonus points
- You Have 15 Seconds to decided
- Circle Your Choice and Bring it forward

Social Dilemmas

- What is best for the individual is not always best for the group or other individuals
  - E.g. Prisoner's Dilemma, Public Goods Game
- Biologists call this the Fundamental Problem of Social Life (Wilson 2002)
- Social Scientists refer to this as the Free Rider Problem

Humans are Primarily Social Animals
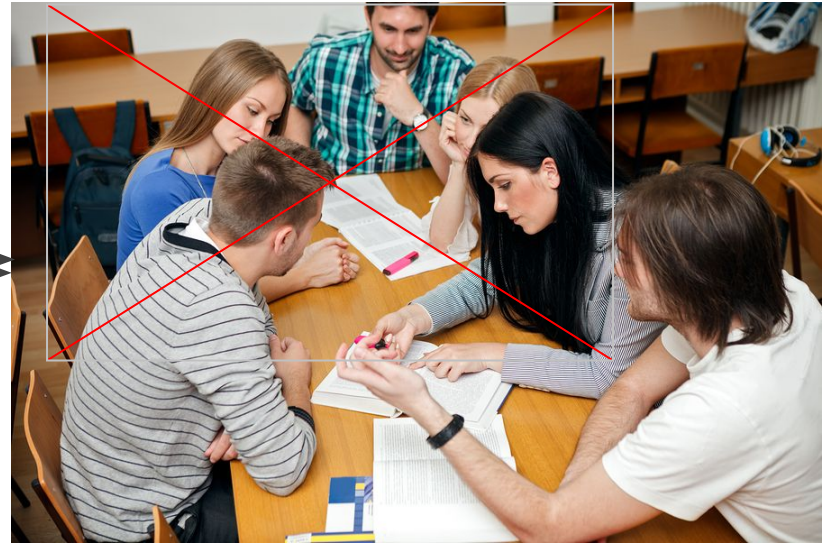
The Utility Model Of Other Regarding Behavior : Social Preferences

The Utility function of a given individual (Me) is dependant on other's Utility (Avery

$$U_{Taylor} = U(x,y, U_{Avery})$$

A Note on Kin

Biologists Classify Social Interactions among genetically related individuals and genetically unrelated individuals differently

Think Friends

Don't Think Family

Social Preference 1: Unconditional Altruism

$$U_{Taylor} = U(x,y, (+)U_{Avery})$$

Social Preference 2: Spite

$$U_{Taylor} = U(x, y, (-)U_{Avery})$$

Social Preference 3: Inequity Aversion

$$U_{Taylor} = U(x, y, (-)\Delta U_{Avery\text{-}Taylor})$$

Social Preference 4: Strong Reciprocity

Taylor's Choice = Avery's Choice Last Round

Nice
Never cheats first

TIT FOR TAT

Retaliatory
Sees cheating and cheats too

Forgiving
Forgives earlier cheating

Let's Play The Game Again

- You Have 1 bonus point to play with and you have been paired anonymously with a classmate
- You can Choose to
  - A) Keep it - You keep your point
  - B) Donate it - Your Partner gets 3 bonus points
- You Have 15 Seconds to decided
- Circle Your Choice and Pass it forward

Revisiting the Social Dilemma

Prisoners Dilemmas Payouts:

Player A, B	Defect	Cooperate
Defect	1,1	4,0
Cooperate	0,4	3,3

Temptation Exists! So how can cooperation evolve?

Reciprocity and the Evolution of Cooperation

- Axelrod & Hamilton 1981 - The Evolution of Cooperation
  - Tit for Tat is the strongest strategy in repeated Prisoner's Dilemmas and allows cooperation to Proliferate
- Robert Trivers 1971 - The Evolution of Reciprocal Altruism
  - Players who tend to group with other cooperators have higher fitness payoffs that allow cooperation to Proliferate

Reciprocity and the Evolution of Cooperation

Groups of Cooperators have higher average payoffs than Groups of Non-Cooperators
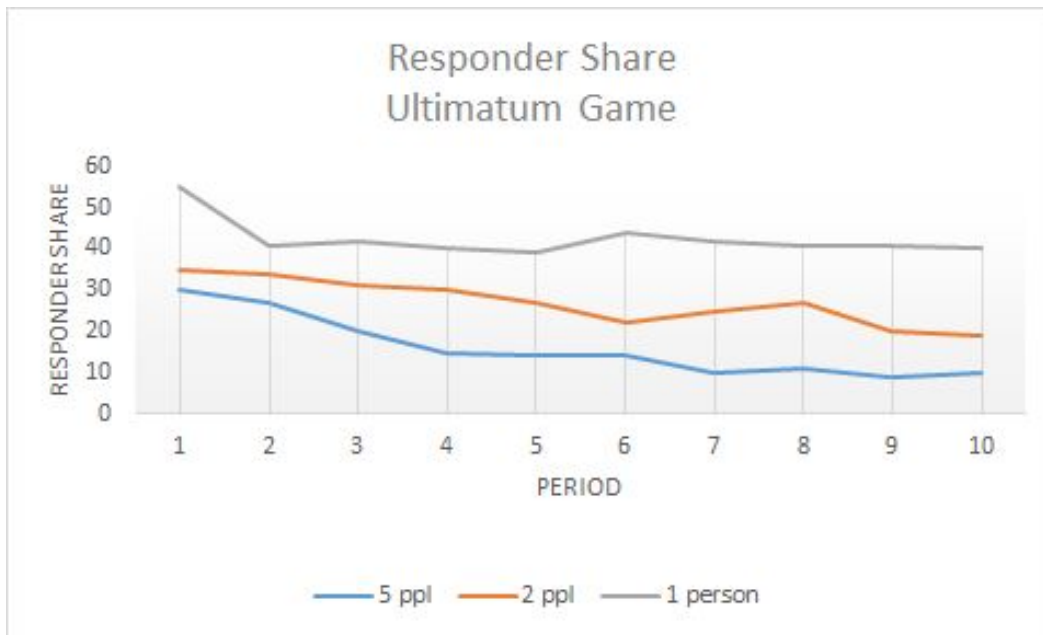
Cooperators : 3 + 3 / 2 = 3
Coop/Defect: 0 + 4 / 2 = 2
Defectors: 1 + 1 / 2 = 1

Groups Matter!!!

Competition & Cooperative Behavior

Cooperative behavior (& Reciprocity is harder to enforce to enforce with less people in a pool of contracts
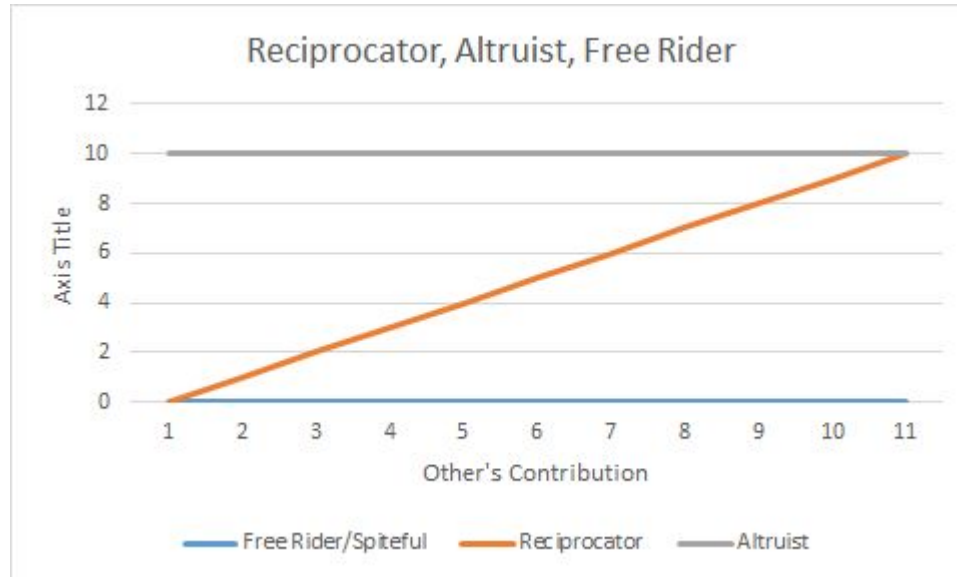

Responder Share
Ultimatum Game
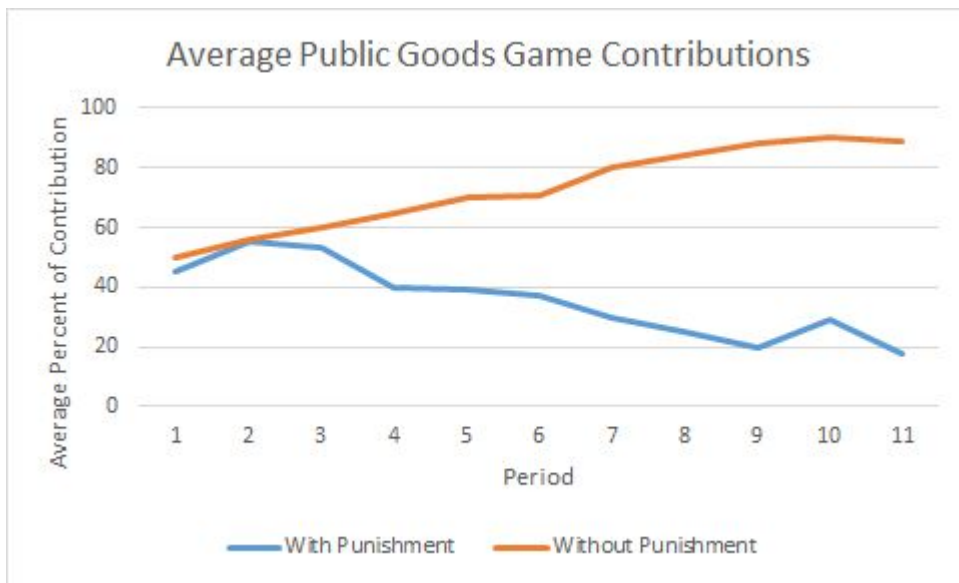
Cooperation & Reciprocity

Prisoner's Dilemma & Reciprocity

Cooperation & Reciprocity Break Down

Time is a large Component and Punishment Can counteract it!

The Economics of Reciprocity

Conclusions
- Social Preferences Play a Role in Utility Functions
- Reciprocity in Competitive Nature can equalize markets if reciprocal actions are enforceable
- Reciprocity can be one of the strongest motivators for cooperation, especially when punishment is possible.

Discuss Results from Rounds 1 & 2

Conclusion

- Neoclassical econ says that people are **rational** (exclusively self-interested)
- As we've demonstrated today, that's not always the case
  - People often act in a way that is other regarding
    - Not rational in the neoclassical sense, but still rational or **satisficing**
    - **Cooperative groups are more fit than those who are not (highest average score)**
      - "Selfish individuals outcompete altruistic individuals within groups. Altruistic groups defeat selfish groups. Everything else is commentary." -Wilson & Wilson, 2007

Paper Discussion

- Rand, D. G. (2016). Cooperation, fast and slow: Meta-analytic evidence for a theory of social heuristics and self-interested deliberation. Psychological Science.
  - Systems 1 & 2
  - Pure v. strategic
  - Social Heuristic Hypothesis (SHH)
  - Key findings:
    - 17.3% more **pure** cooperation with intuitive
    - No difference in **strategic** cooperation with intuitive or deliberative
    - Strong support for SHH
    - Evolutionary implications

See also Bear, A., & Rand, D. G. (2016). Intuition, deliberation, and the evolution of cooperation. Proceedings of the National Academy of Sciences, 113(4), 936-941.

Questions?