Reciprocity, Cooperation, and Reputation

- Reciprocal altruism
- Prisoner’s dilemma: repeated play allows cooperation
- Generosity, punishment, spite (Ultimatum games)
- Reputation
- Collective action and punishment (Public goods games)

Before next lecture, see intentionality bias 1 and 2 on course website (fun and games). How would you describe what you see?
Reciprocal altruism

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Human cognitive specializations identify cooperators and cheaters, social emotions encourage reciprocity.
### Prisoner’s Dilemma

<table>
<thead>
<tr>
<th>If I Cooperate I get</th>
<th>If Other Player Cooperates</th>
<th>If Other Player Defects (Cheats)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>R=3</strong></td>
<td><strong>S=0</strong></td>
</tr>
<tr>
<td>Reward for mutual cooperation</td>
<td></td>
<td>Sucker's payoff</td>
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<td></td>
<td><strong>T=5</strong></td>
<td><strong>P=1</strong></td>
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<tr>
<td>Temptation to defect</td>
<td></td>
<td>Punishment for mutual defection</td>
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Repeated Prisoner’s Dilemma

- One-shot PD game: optimal strategy is to defect, even though both are worse off
- Repeated play allows cooperation
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Axelrod’s tournament

Iterated prisoner’s dilemma in the real world

- Milinski’s sticklebacks
- Partial treaties in disarmament talks
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- Tit for tat: first cooperate, then imitate
- Tit for 2 tats: tolerates isolated slips
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But with primates, an individual’s character is well-known, and defectors are shunned. So clusters of reciprocators can form.

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Reciprocity, reputation, and cleaner fish

2 wrasse cleaning dead skin and ectoparasites from a potato cod

Why don’t the big fish eat the cleaner fish? Individual cleaners and hosts interact repeatedly at permanent “cleaner stations”.
Reciprocity in the EEA

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Lots of experimental evidence points to the fact that we still have a mindset favoring reciprocity, and tuned to reputation.
Ultimatum game, generosity, and spite

Ultimatum (rules of the game):

- The "proposer" is given money
- Proposer divides as he wishes with anonymous recipient
- Recipient can accept the offer, or refuse
- If recipient refuses, neither keeps anything.

If I give you $10 under these rules:

- How much would you offer an anonymous other person in this class? (why?)
- If you were offered $3, would you accept?
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Ultimatum Game, Random Assignment

Divide 10 dollars (proposer and recipient chosen randomly)
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what factors make people more or less generous?
Ultimatum Game, Contest Assignment

Divide 10 dollars (proposer won a general knowledge quiz)

(from Hoffman et al.)
Anonymity also reduces generosity.
Anonymity also reduces generosity. But not completely.

Even when no one, including the experimenter, could possibly know the offer, most people still offered something.

People play as though they are expecting a future interaction (either later punishment or future cooperation). Anonymity an evolutionary novelty?
Ultimatum Game cross-culturally

Minimum accepted (non-punished) offers, by size of local group

More punishment in larger societies. 50-50 “fair” offers most common in market societies, not foragers, although foragers share food more widely than other societies. (Marlowe et al. 2008).
Public goods games and collective action

Ultimatum and PD were 2-person games. Can large groups can act collectively for their common good?

The public good (clean air, a clean kitchen, etc.): With voluntary contributions, everyone benefits, but free-riders benefit more.
Public goods games and collective action

A public goods game:

- subjects given tokens to be exchanged for money at end
- subjects decide (privately) how many tokens to put in common pot
- experimenter multiplies tokens in the common pot
- subjects keep tokens not contributed, plus even share of common pot

![Graph showing average contributions over different rounds]
Generosity is unconscious, selfishness requires thought

Public goods game, natural responses timed:
People become more selfish when forced to think
Public goods game, forced timing (less than or more than 10 sec):

Similar result when primed to think about (a) a time when intuition had led in the right direction or careful reasoning in the wrong direction. Or (b) a time when intuition had led in the wrong direction or careful reasoning in the right direction.
Is automatic generosity influenced by our experience?

Opinion of daily life cooperation partners:

from Rand et al. 2012
Public goods games: Punishment

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Is there a second-order collective action problem (do we punish people who don’t punish?) No (foragers).
Mind-reading and the prisoner’s dilemma

Tit for tat is a good strategy if you can’t read your opponent’s mind. But people are also good mind readers.

Strangers performed significantly better than chance at predicting when their prisoner’s dilemma partner would cooperate and when he would cheat (Frank et al, 1993).
Cognitive specializations for cheater-detection

How were they able to predict what their partners in the PD game would do?

- reading minds with a “theory of mind” (next time)
- reading faces (next time)
- emotions as honest signals (next time)
- cognitive adaptations: is there a “cheater-detection” module? (next time)
People are surprisingly generous to non-kin
Reciprocal altruism is one explanation for this generosity
Prisoner’s dilemma: repeated play allows cooperation
Ultimatum game shows that people punish unfairness (in WEIRD societies)
Anonymity reduces generosity, suggesting importance of reputation
Cooperation in public goods aided by reputation, punishment of cheaters