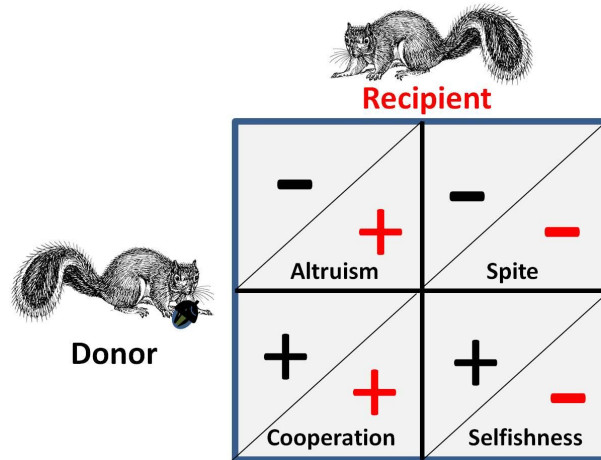


Reciprocity, Cooperation, Reputation



Why be generous to non-relatives?

Last time we discussed the evolutionary basis for altruism to relatives.

Kin selection can explain most altruism in non-human species, but humans are very generous to non-relatives as well.

How can that be favored natural selection?

Why be generous to non-relatives?

Last time we discussed the evolutionary basis for altruism to relatives.

Kin selection can explain most altruism in non-human species, but humans are very generous to non-relatives as well.

How can that be favored natural selection?

Subject of the next two lectures; There will be no lecture on the ontogeny of human prosociality - we'll discuss briefly next lecture

Reciprocal altruism

Altruistic behavior can be favored by natural selection when there is a high probability that the recipient will eventually reciprocate with altruistic behavior.

But how to ensure that the generosity is reciprocated?

Reciprocal altruism

Altruistic behavior can be favored by natural selection when there is a high probability that the recipient will eventually reciprocate with altruistic behavior.

But how to ensure that the generosity is reciprocated?

- **Cognitive** specializations identify cooperators and cheaters
- **Social emotions** encourage reciprocity (indignation, gratitude, guilt)

We will look at how people play various “cooperation games” as a window into the psychology of generosity, selfishness, and spite

Prisoner's Dilemma

	If Other Player Cooperates	If Other Player Defects (Cheats)
If I Cooperate I get	$R=3$ Reward for mutual cooperation	$S=0$ Sucker's payoff
If I defect I get	$T=5$ Temptation to defect	$P=1$ Punishment for mutual defection

Optimal strategy is to defect, even though it leaves both players worse off

Repeated play allows cooperation

- One-shot PD game: optimal strategy is to defect
- Repeated play allows cooperation

Tit for tat

- Tit for tat: first cooperate, then imitate
- Tit for 2 tats: tolerates isolated slips

Tit for tat in sticklebacks, partial treaties in disarmament talks, etc.

Reputation and gossip

In Axelrod's tournaments, the players had no advance knowledge of their opponent's behavior. And players interacted at random.

But with primates, an individual's character is well-known, and defectors are shunned. So clusters of reciprocators can form.

In humans, communication (gossip) allows a person's character to be shared and known widely. This makes it easier for reciprocal altruism to work.



Reputation

Maintaining a good reputation by incurring a short-term cost can pay in the long run.

People act as though their behavior will be known and there will be future interactions.

Can explain some seemingly maladaptive cooperation:

- actual play in 1-shot PD game
- tipping in distant cities, etc.

Reciprocity and sharing in the EEA

How to cope with temporary scarcity? We have credit cards, bank accounts, extensive food storage and trade.

For hunter-gatherers, security is the other people in the group. Reciprocity especially important in the hunter-gatherers.

Food sharing in hunter-gatherers

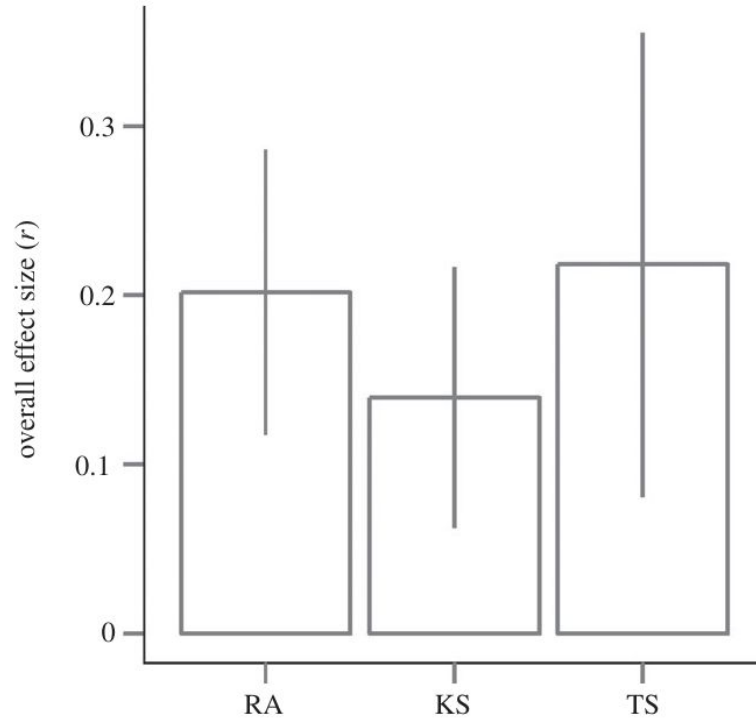


Figure 2. The relative effects of reciprocity (RA), kin selection (KS) and tolerated scrounging (TS) on food sharing in a subset of studies including all three factors in the same analysis (three on apes and seven on humans).

There are debates about why primates and hunter-gatherers share food.

A phylogenetic meta-analysis found that reciprocity is important, even controlling for kinship and “tolerated scrounging”

Jaeggi & Gurven, *Proc Roy Soc B*, 2013

Ultimatum game, generosity, and spite

Lots of experimental evidence points to the fact that we still have a mindset favoring reciprocity, and tuned to reputation. Economic games are a window into that psychology.

Ultimatum Game (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.

Ultimatum game, generosity, and spite

If I give you \$10 under these rules:

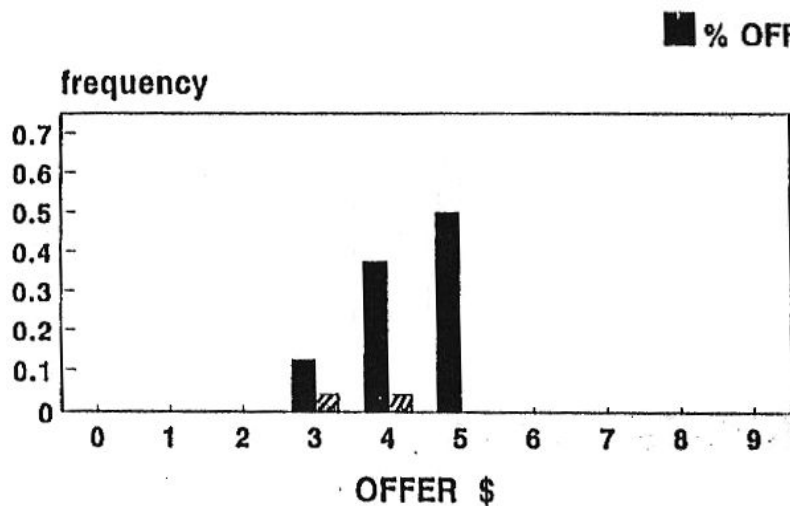
- the “proposer” is given money
- proposer divides as he wishes with anonymous recipient
- recipient can accept the offer, or refuse
- if recipient refuses, neither keeps anything.

How much would you offer an anonymous other person in this class? (why?)

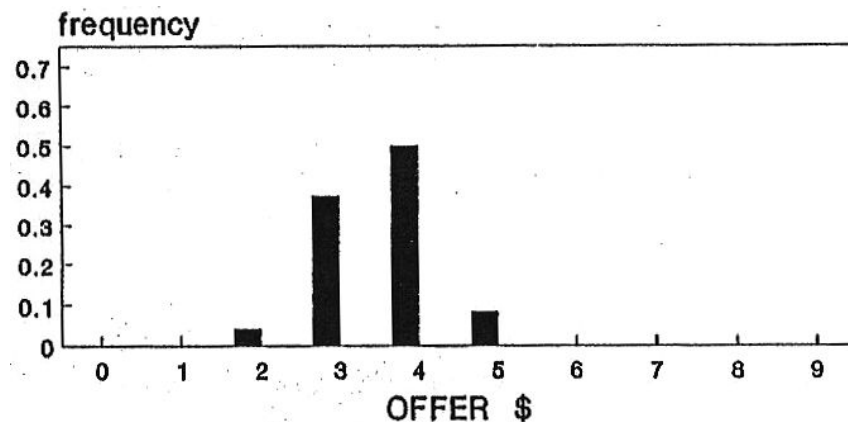
If you were offered \$3, would you accept? How would you feel?

Ultimate game: What affects generosity?

Divide 10 dollars:



Proposer & recipient chosen randomly



Proposer won general knowledge quiz

Hoffman et al. *Intl J Game Theory* 1996

Ultimatum Game: Anonymity

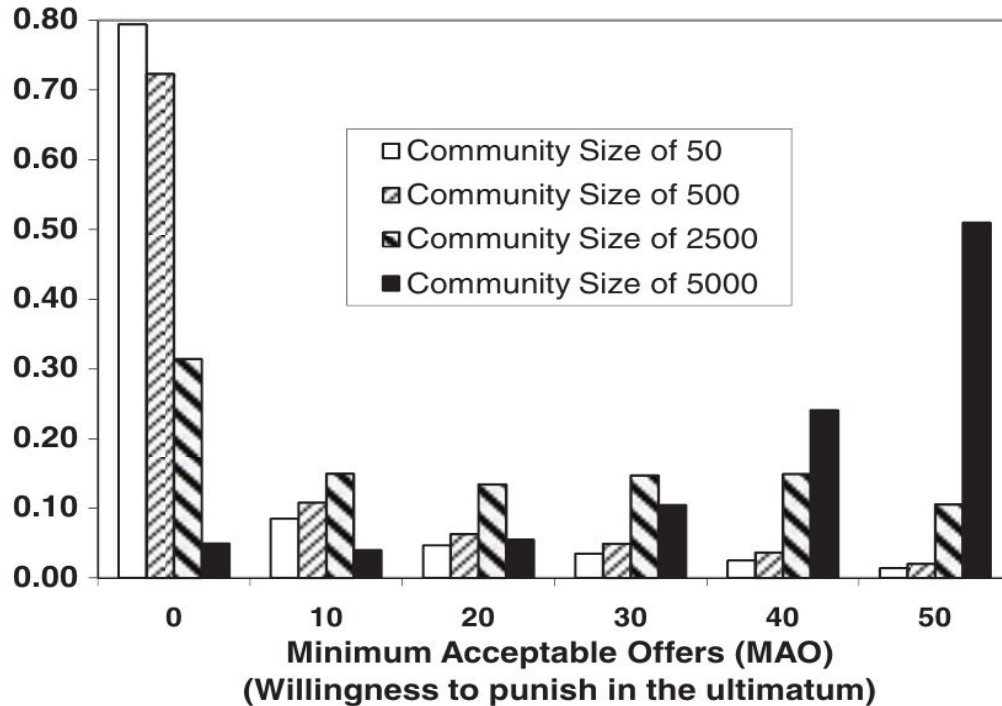
Anonymity reduces generosity. But not completely.

Anonymity an evolutionary novelty - people may not really believe the game is anonymous.

But even when no one, including the experimenter, could possibly know the offer, many people still offered something.

People play as though they are expecting a future interaction (either later punishment or future cooperation).

Ultimatum game cross-culturally



Minimal acceptable offer was larger in large communities.

Yet sharing is most widespread in non-market economies. ?

Experimental games and games of life

!Kung hunter-gatherers who played an anonymous ultimatum game were stingy (most gave 1, 2 or 3 Namibian dollars), and took what they got (didn't punish)

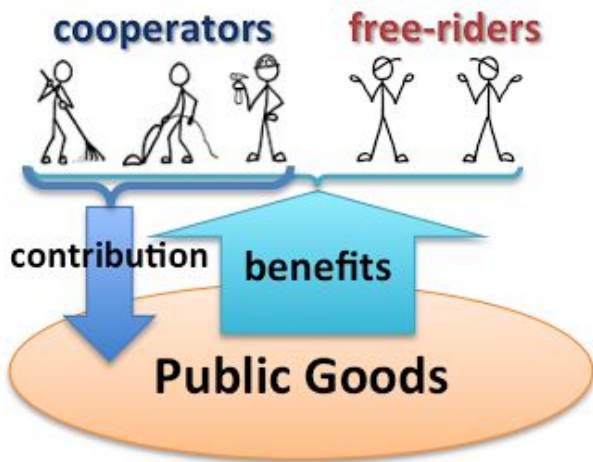
But when followed afterwards, they were generous with the money they received in the game, buying things for others, etc.

Generosity in small-scale societies depends on lack of anonymity, reputation, and shared expectations.

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 Goods Game



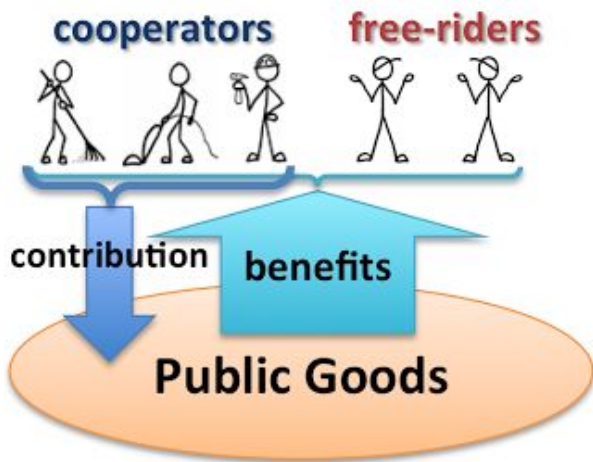
A public goods game:

- subjects given tokens, decide (privately) how many tokens to put in common pot
- experimenter multiplies tokens in the pot
- subjects keep own tokens, plus an even share of pot
- “Tragedy of the commons”

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 Goods Game



A public goods game:

- subjects given tokens, decide (privately) how many tokens to put in common pot
- experimenter multiplies tokens in the pot
- subjects keep own tokens, plus an even share of pot

People typically start with generosity, then stop when other free-ride.

How to prevent free-riders in a public goods game?

- Concern about reputation
- Punishment, monetary or verbal, stops free-riding in WEIRD societies, not in all societies

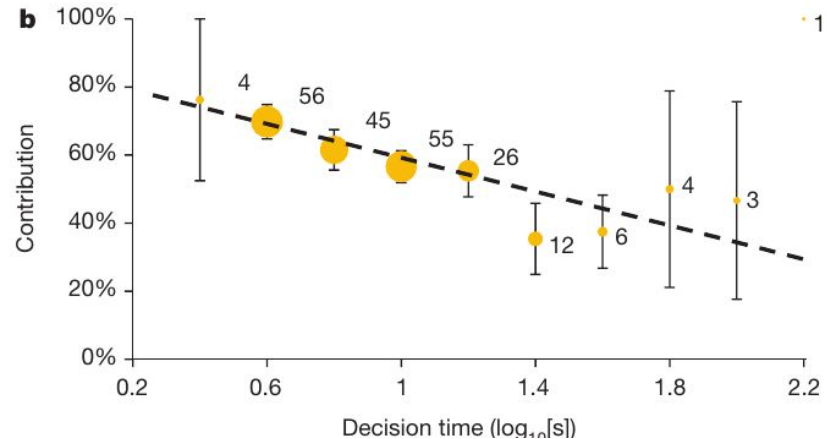
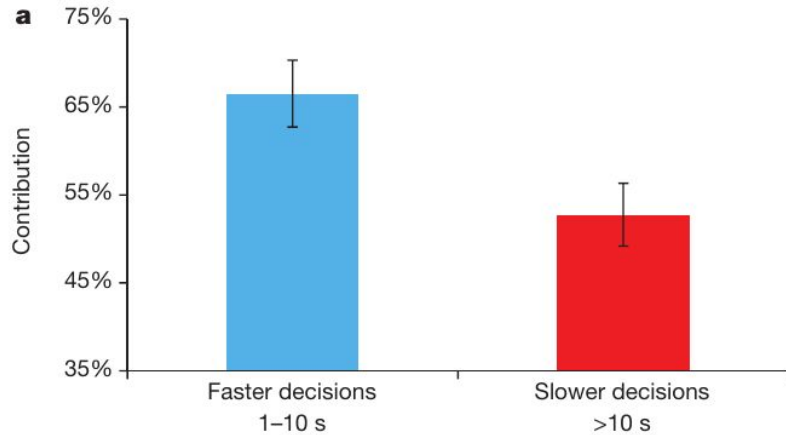
Why pay to punish, even though everyone in the group benefits?

- text says we respect people who punish defectors
- most punishment (shunning, lack of respect) is not that costly

Consider implications for current collective action problems (pollution in oceans, carbon in the air, contagious diseases)

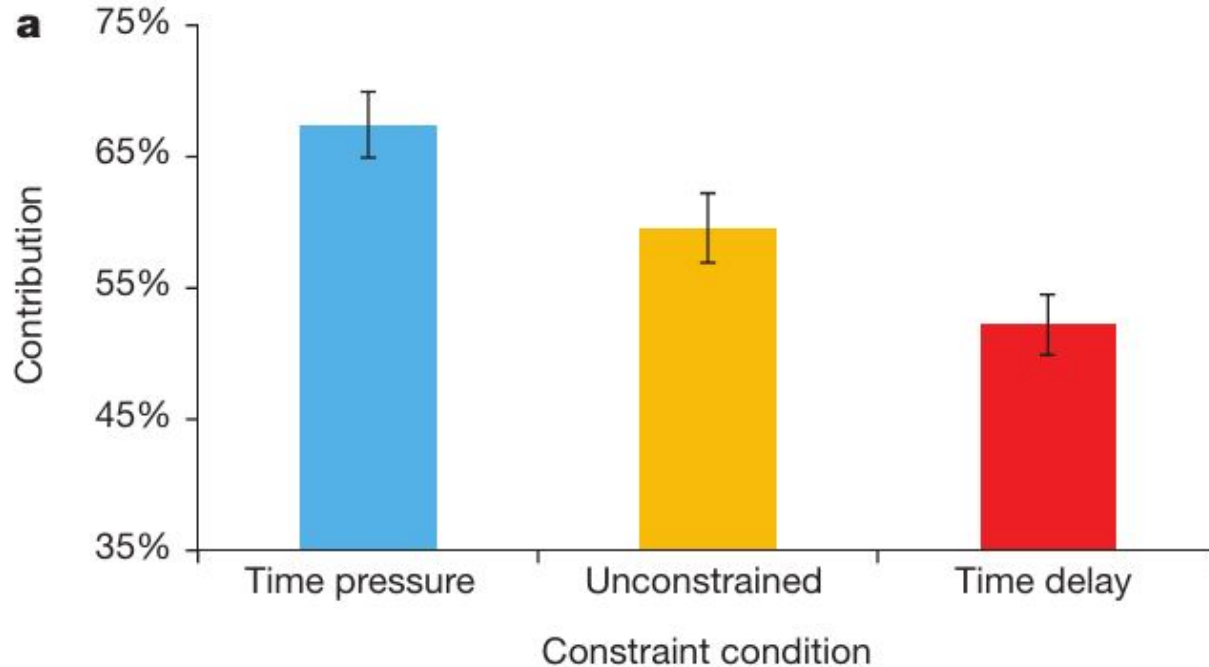
Generosity is unconscious, selfishness requires thought

In a one-shot public goods game, the fastest respondents were more generous



Rand, Greene & Nowak, Spontaneous giving and calculated greed. *Nature* 2012

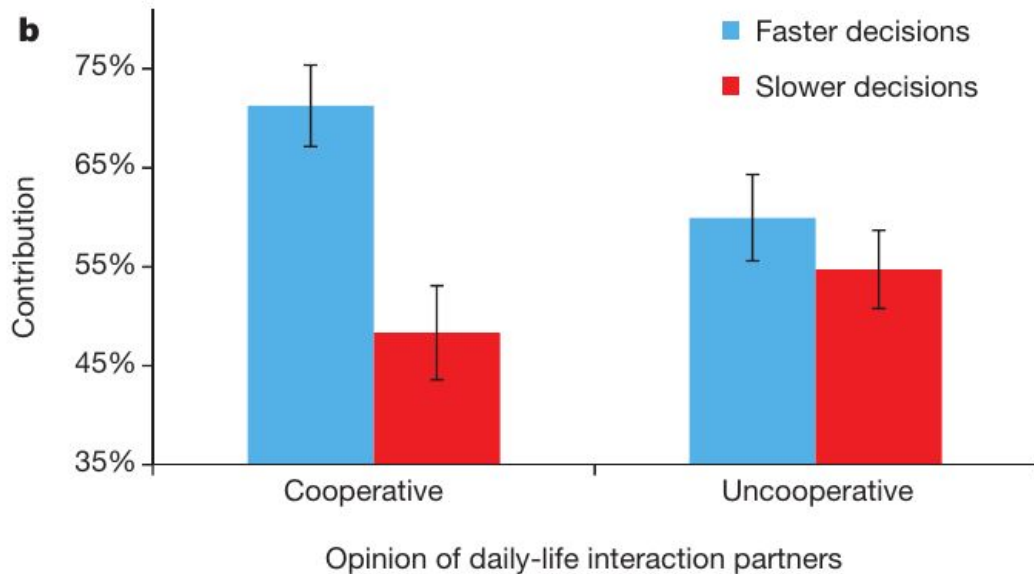
People became more selfish when forced to think



Public goods game, forced timing (less than or more than 10 seconds).

Similar result when primed to reflect on time when intuition led to right outcome, careful reasoning to wrong outcome, & vice versa

Is automatic generosity influenced by experience?



Faster decisions are associated with more generous contributions - but only among people who have cooperative daily-life interaction partners.

People develop their intuitions in the context of daily life

Summary

People are surprisingly generous to non-kin, and reciprocal altruism is one explanation for this generosity

Communication, gossip and reputation helps make reciprocity work

- Anonymity reduces generosity
- Prisoner's dilemma: repeated play allows cooperation
- People punish unfairness (ultimate game in WEIRD societies)
- People are instinctively generous -- if they experience it in life

More on this next time, when we discuss cognitive specializations for cooperation