

COOPERATION & EMPATHY



Masterclass 2a



COOPERATION (NARROW SENSE)

Joint action by two or more individuals aimed at producing benefits that are hard or impossible to obtain individually.

COOPERATION (BROAD SENSE)

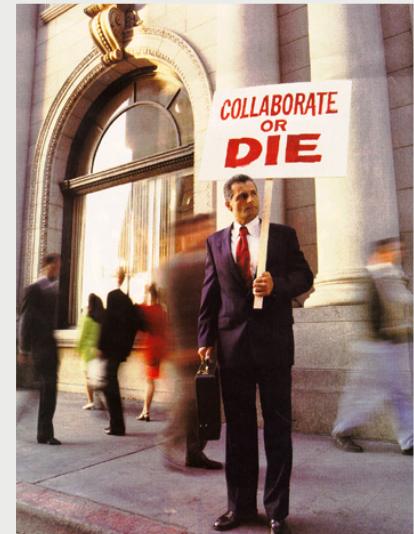
Any form of assistance or benefits derived from others, even the mere presence of others (i.e. group life is by definition cooperative).

Evolutionary Explanations of Altruism

1. Kin selection (shared genes)
2. Mutualism (shared benefits)
3. Reciprocity (alternating benefits)

MUTUALISM

Shared benefits

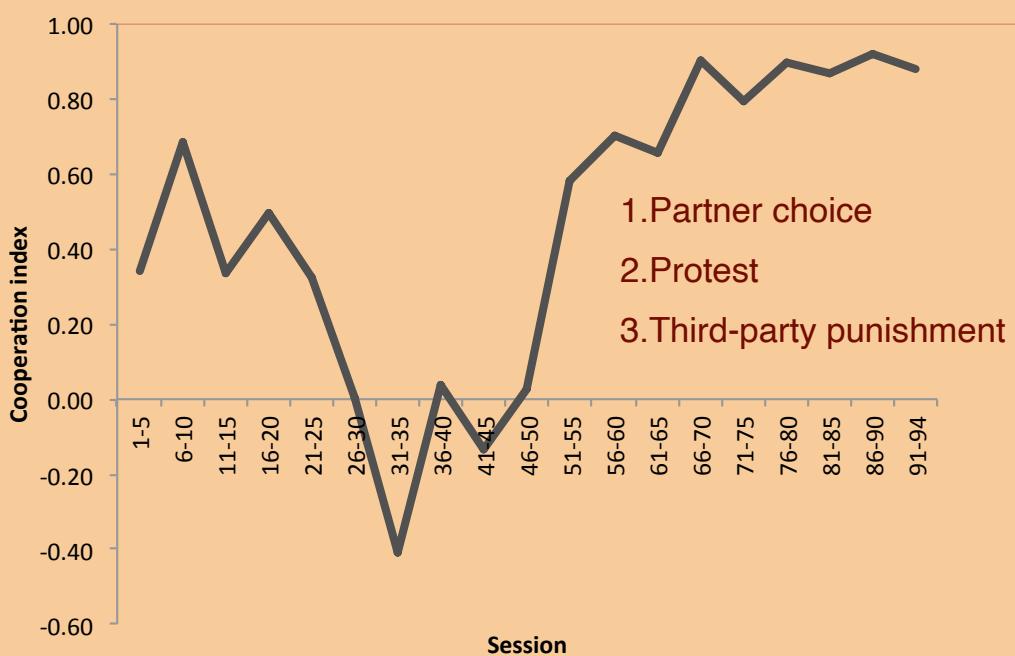


Cooperation in a competitive world

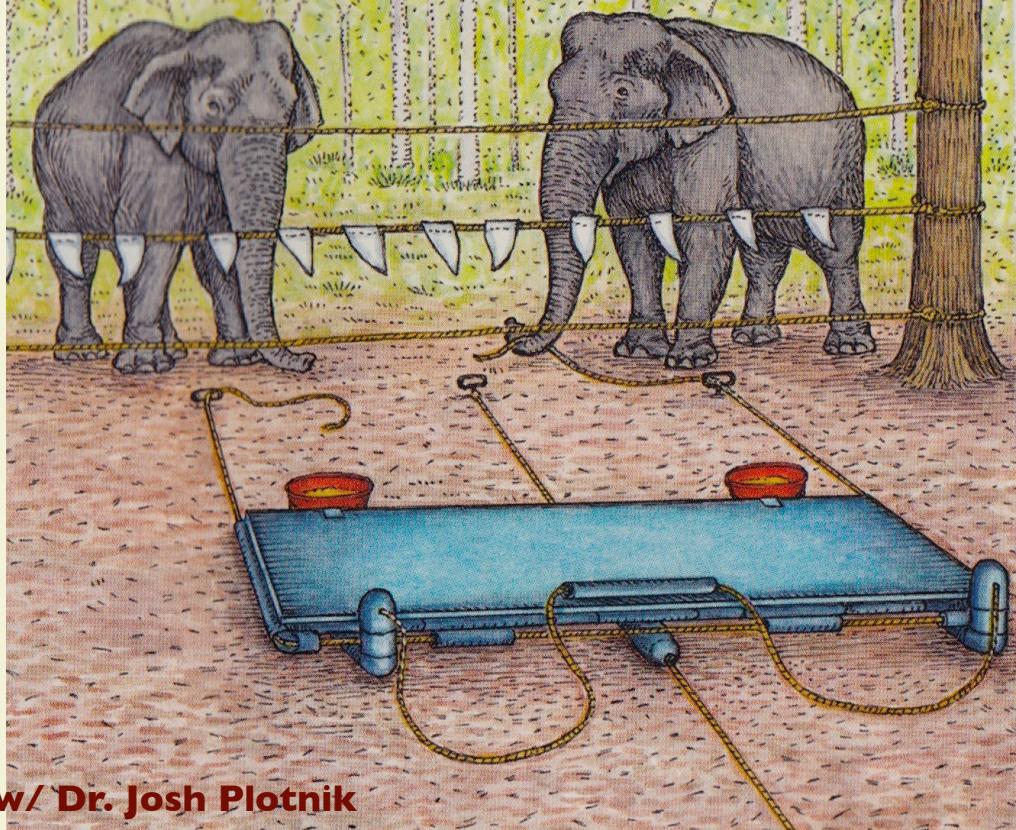
w/ Dr. Malini Suchak



3,656 Successful Pulls



ELEPHANT COOPERATION



w/ Dr. Josh Plotnik

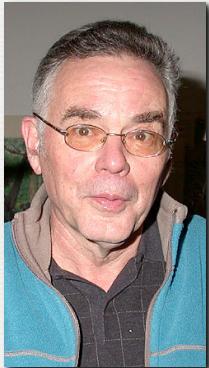
RECIPROCAL ALTRUISM

1. Time delay between giving & receiving
2. Contingency between giving & receiving



Robert Trivers (1971)

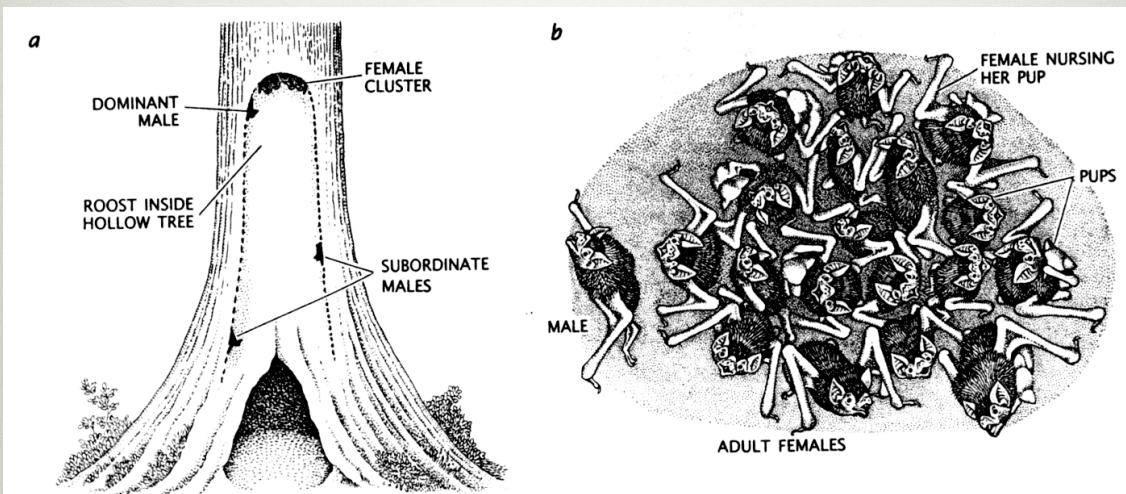
Theory of Reciprocal Altruism



A's balance: $b - c$

B's balance: $b - c$

Vampire bats (Wilkinson, 1984)



Reciprocity in Chimpanzees



Sequential Study

~ 7,000 interactions



Grooming

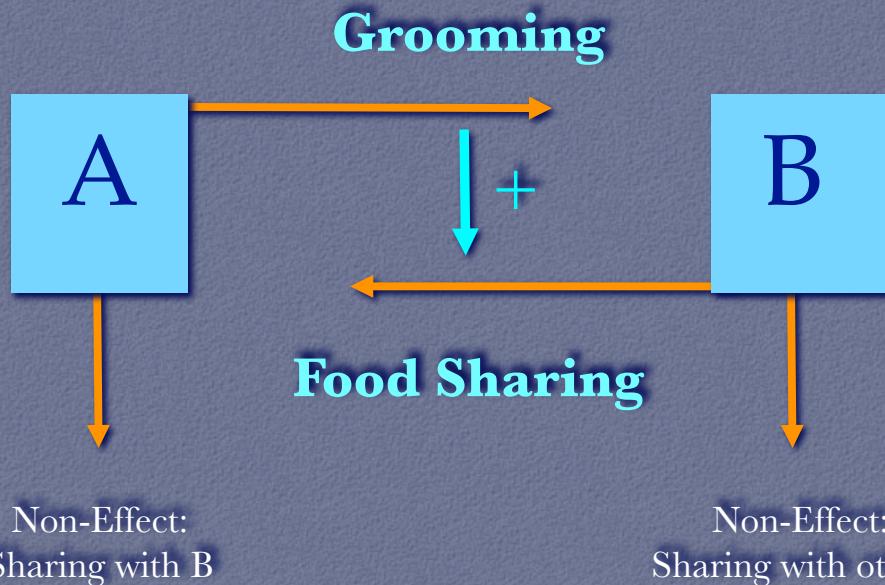


Food-sharing

Morning

Afternoon

1 Effect, 2 Non-Effects



EMPATHY: The ability to understand and share the feelings of another.

Emotional (body) channel

Synchrony, motor mimicry ... emotional contagion

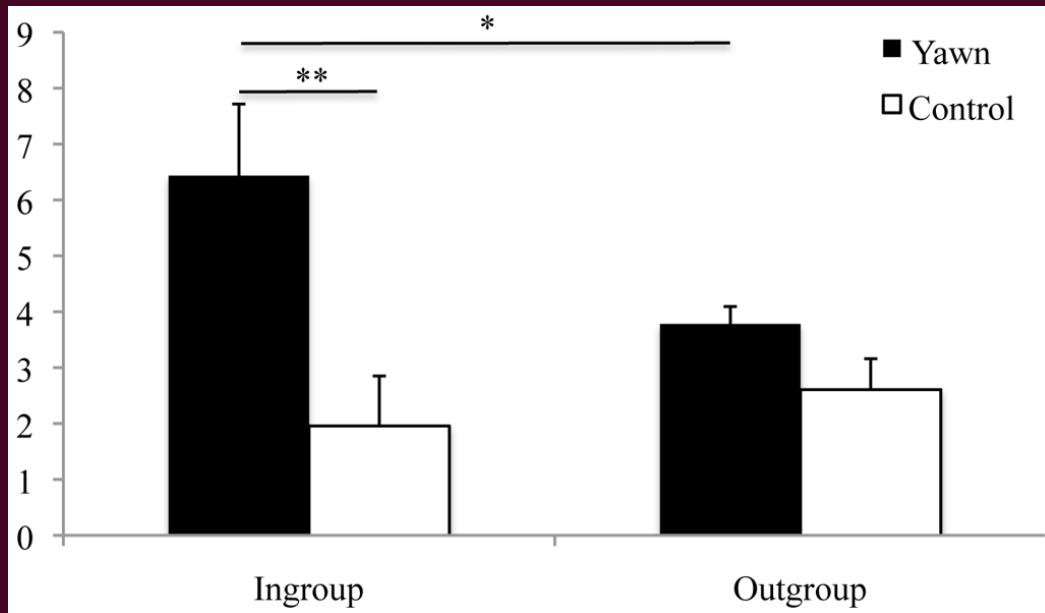
Cognitive channel

Self-other distinction ... perspective taking



Neonatal Imitation

Ferrari PF et al. 2006. PLoS-Biology 4: 1501-8.



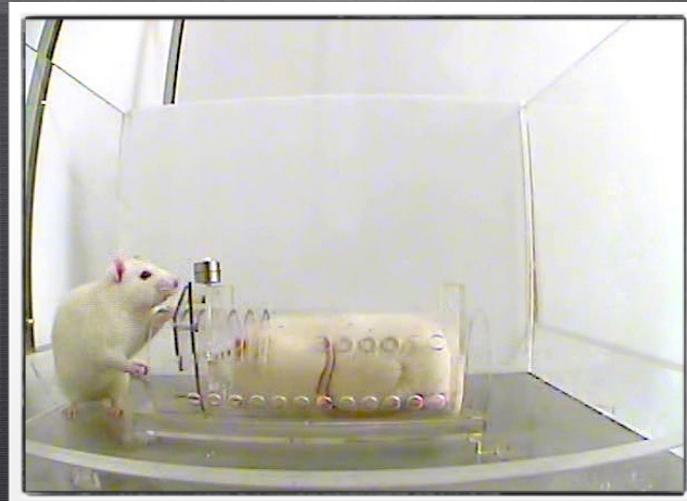
In-group bias in yawn contagion, PLOS One, 2011

EMOTIONAL CONTAGION



Langford DJ et al. 2006. *Science* 312: 1967-70.

RESCUED BY A RAT



EMPATHY-BASED ALTRUISM
BARTAL ET AL., 2011, SCIENCE