

Cooperation: Convergence from other Species

Vampire Bats share food but not indiscriminately:

Share with those from whom food was received

Increased propensity with:

- Association

Must share close proximity at least 60% of time

- Need of the “friend”

Evolved Reciprocal Altruism

Principles of Reciprocal Altruism expressed in Bat behavior:

1. Frequent **contact** for long periods
2. **Frequency** of association correlated with **degree** of altruism
3. **Benefits** to giver higher than **Costs** to giver
4. Frequent **reversal** of circumstances
5. Preference given to those who have **recently** helped

Reciprocity in Non-Human Primates

Baboons solicit help during conflict:

Rapidly shift eyes between recruit and antagonist

Greater response to requests in Sexual Conflicts

- Results in successful mating 80% of time
- Responder does not benefit directly, sexually
- Enhances likelihood of future reciprocal response
- Sexual success rare in absence of male friendships

Reciprocity in Non-Human Primates cont.

Recordings of Female Vervet vocal solicitations for help:

Attentive response more likely from those who had been groomed
by requestor (but not by requestor's kin)
(must be able to recognize voices -- **Adaptive Advantage**)

Grooming only enhance response to **Non-Kin**

Greater than for Kin who have engaged in grooming

Reciprocal Altruism rather than **Kinship**

Political Alliances in Primates

Male chimpanzee status depends upon **Reciprocal Alliances** with Females (Franz de Waal)

Defend female against attack, peacemaking

Regularly solicit alliances with females

- Groom female
- Play with their infants (L-T Strategy?)

Bight, chase, pounce on females seen with competitor

But soliciting and nurturing towards her children when

She gives up competitor

Origins of Spouse Abuse ?

Chimpanzees cont.

Male political alliance with other males necessary to move up
Social hierarchy

- For access to females
- To re-ascend hierarchy following loss to challenger
 - Sharing of females with ally
 - Evolution of **Reciprocal Altruism?**

Social Contract Theory

Problem of Reciprocal Altruism: Non-Simultaneous

Potential for Cheating

Miss-match of needs and abilities

Cheaters would have an advantage such that:

- They would out breed non-cheaters/Altruists
- Altruism would disappear from genome
- Unless mechanism evolve

For detection and avoidance of cheaters

Places cheaters at a competitive disadvantage

Requirements For Social Contracts

1. Recognition of Many Individuals:

Humans: 90% Correct after 34 years

Prosopagnosia

Humans: Recognition by Gait

2. Memory for Interactions:

**What was exchanged and with Whom
Is Compensation Adequate?**

Requirements For Social Contracts

3. Ability to Communicate one's Values:

- Needs
- Distress at Other's Cheating

Chimps will chase and scream at **Conspecific** who does not reciprocate social alliance

4. Ability to Model Values of Others:

Understanding **Values** and **Needs** of Others

Maximizing efficiency of benefit you provide maximizes their indebtedness to you

Requirements For Social Contracts

5. Ability to Costs and Benefits Abstractly:

- Free of **Specific** items exchanged
- Needs may be different in future

Test of Social Contract Theory

Over 90% of college students failed to test rules correctly
Either Abstract or Concrete

75% correctly tested Same Rules

- If presented within a Social Context
- And involved Cheating

Social Contract Theory cont.

a

b

2

3

Rule: If a vowel on one side then an even number on other side

Rule: Room with Archeologists, Biologists, & Chess Players:

- None of Archeologists are Biologists
- All Biologists are Chess Players

Error: None of Archeologists are Chess Players

Failure to recognize that some Chess Players are
non-Archeologists

Social Contract Theory cont.

Rule: No drinking under 21yrs. of age

Data:

Someone drinking beer

Someone drinking soda

A twenty five year old

A sixteen year old

Task: Who do you check?

Social Contract Theory, cont.

Detecting cheating is Context Sensitive:

Asked to take perspective of employer:

Look for those collecting retirement without having worked
A full Ten years

Asked to take employees perspective:

Look for those having worked for more than ten years without
Receiving their pension

Friendship

Altruism does not occur without a **Cost** (by definition)

Hamilton's Rule: Altruistic cost must be lower than the benefit
Times degree of genetic relatedness **on average**
Otherwise would not have evolved

The less costly the more widespread the benefit
Evolutionary pressure to minimize costs or make the act
beneficial

Friends & Limited Resources

Those who need help most are least likely to reciprocate:

Is it the best utilization of resources?

Would others benefit more in the long-run?

Must be able to evaluate risk

Evolutionary pressure for abandonment at worst time

Evolutionary pressure to become irreplaceable to avoid being

Abandoned:

1. Recognize what others value
2. Cultivate skills
3. Affiliate with those who value your attributes but do not Possess them (Big fish in little pond)
4. Drive off rivals with similar attributes

Friend Selection

Criteria arise from limited number of friendships possible
(**Friendship Niches**)

1. Number of slots already filled
2. Evaluate who emits **Positive Externalities**
Behaviors/Attributes which are of **Incidental** value to you
(not generated as an act of altruism – e.g., ability to find game)
3. Friends who are good at reading you – maximizes benefit
4. Friends who consider you irreplaceable
5. Friends with common goals – mutual benefit

Issue: Abandonment rather than being **Cheated** (per **Reciprocal Exchange**); must sense fading relationships

Friendships: Costs & Benefits

Friends may become competitors – E.G., Intra-Sexual Rivalry
Vs. Potential for Opposite Sex mating

Bleske & Buss, Cost/Benefits of friendship:

Hx1: Ratings of potential S-T sexual access Men > Women
Per **Parental Investment Theory**

Confirmed: 2X higher rating

- Men report more unreciprocated attraction
- Women report receiving more romantic attention which was not reciprocated
- Men report being denied sex more often

Bleske & Buss cont.

Hx2: Women have an evolved preference for male friends who can offer Protection and Resources (for self & offspring)
Confirmed: 3.06 vs. 1.68

Hx3: Opposite-sex friendships serve to provide information concerning opposite sex
Confirmed:

Quantity of Information: 2.84 vs. 1.86

Quality of Information: 4.15 vs. 3.12

Hx4: Same-sex friends will be perceived as intra-sexual rivals:

Rate of Competition: 1.03 for S-S friends vs. 0.14 for O-S friend

Potential Cost: 2.12 for S-S friends vs. 0.71 for O-S friend

Bleske & Buss cont.

Men reported more frequent Intra-Sexual Rivalry

Consistent with:

- Male's greater propensity for **S-T Mating Strategy**
- Men view S-T sexual access as an important benefit
Of Opposite-Sex friends