In Biology…

**“Altruism”** = Any act that Benefits another, in which Cost to agent is greater than Benefit to agent
- e.g. Alarm calls are “altruistic” since alramer may attract predators to itself while protecting others
- Most often performed between related individuals (per “Kin Selection”)
- e.g. Newcomers to a primate troop less likely to alarm than long term resident w/kin in group
- Similar results in ground squirrels, and other non-primates

“**Reciprocal Altruism**” (see Trivers 1971) occurs between unrelated individuals
- This is most likely when the following conditions hold:
  - 1) Animals are long lived
  - 2) Animals live in coherent groups so will have repeated encounters
  - 3) Animals have cognitive ability to monitor status of “social contract”
  - Track who owes who (see Reciprocity, below)
  - Track “currency” values
e.g. Aid in agonism, bonding contact/rituals, cooperative feeding, co-vigilance for predators, etc.
- Assessments of reputation i.e. Observe who potentially a good partner, who on fence, etc.
e.g. e See earlier lecures on coalition building, knwoing the relations of others, etc.
- 4) Check for “Cheaters”
  - Those who do not reciprocate must detected and punished (“sanctioned”)
e.g. De Waal 1996: Yeoren sanctions coalition partner Nikki (new #1) for not helping against Luit
  - Otherwise, Cheaters could exploit, swamp system, making reciprocal altruism unstable

-BUT note, definitive data for “Reciprocal Altruism” hypothesis are difficult to generate & interpret!
- While presumed to be likely in animals that form coalitions or otherwise collaborate w/non-kin…
  - determining “Cost”, “Benefit”, “Social Currency” etc. not straightforward, esp over long time periods!
- Nonetheless, bits & pieces suggest both primates & cetaceans may be candidates…

**Altruism**

**PRIMATES**
- e.g. **Food Calls in Chimps** – If find fig tree w/lots of ripe fruit, then call; If little ripe fruit, then don’t
  - Often results in sharing with kin, but broadcast call also attracts non-kin & some sharing occurs
- e.g. **Vervet Alarm Calls** - diff for Eagle, Snake, Leopard, provoke appropriate defensive response
  - Eagle: Move to center of tree, Snake: Stand up & look around, Leopard: To outer tree branches
- Infants begin calling @ ~1 year, but first to right category/wrong instance (e.g. Eagle to Vulture)
  - Eventually, thru feedback from others’ response & use, learn to only alarm to threat species

**CETACEANS**
- Epiemeletic (Care-Giving) **Behavior**, common esp in Odontocetes, unlike in NHPs
  - e.g. When one ailing/dead, others will lift to surface to breathe
  - e.g. One captured, harassed, others will “stand by” - Whalers used this to catch esp. Sperm whales
  - e.g. Sometimes see shark teeth marks on Tursiops’ head from ramming – defending others?
  - May be responsible for **mass strandings** seen in esp Globicephaline species (Pilot whales, Orca)?
    - i.e. Only one, few animals ill, but others will also beach, refuse to leave (or until other dead)
- Again, above cases may often involve kin (since Sperm Whales & Pilot whales at least live in matrilineal groups)
  - BUT can sometimes see same type of behavior between animals of different species
    - e.g. Captive Orca & Lag, or Orca from different oceans aid, mourn one another
    - e.g. Wild Bottlenose sometimes sides with known Spotteds against other unknown Bottlenose
    - e.g. Long history, including recent, reports of Humans being rescued, protected from sharks
- Strictly speaking, only these technically fit the “**Reciprocal Altruism**” model described above
  - See Connor & Norris, 1982

**Reciprocity**

**PRIMATES**
- Best examples of “altruism” involve apparent expectation of reciprocation…
  - Female Vervets more likely to aid nonkin if latter recently groomed them (tho aid kin, regardless)
  - Male Olive Baboon helps male ally drive off a third from female, tho may not get to mate that time
  - Some male Chimp hunting bands (Tai forest) share meat only w/participating males
  - Female Bonobos form reciprocating coalitions (e.g. via gg-nub, groom, peer, etc.)
  - Plus, sex with males or females can be exchanged for food in Bonobos

**CETACEANS**
- No data yet for dolphins, although coalitional and cooperative behavior commonplace, so seems likely…
Reconciliation in Primates & Cetaceans

“Reconciliation” = Increased tendency to engage in affiliation following agonism
- NOTE: Not necessarily “Altruistic” since still serve self-interest… (make peace, reduce stress, repair relationships, etc.)
  - But, certainly an aspect of human “ethics” and does serve the “greater good”
PRIMATES: Compare likelihood of affiliative interaction w/in 10 minutes of agonism vs. of random proximity
  - Of many Primate studied, most do increase grooming, friendly contact immediately after fights
    - e.g. Seem more often egalitarian Stumptail than despotic Rhesus Macaques (except w/kin)
  - “Mediated” Reconciliation (e.g. DeWaal) – when antagonists do not themselves show inclination to reconcile
    - Other in group may establish a jointly-affiliative context, until antagonists groom each other

CETACEANS- One study in captive Bottlenose also shows affiliation increased after agonism (Weaver, 2003)

Ethics? in Primates & Cetaceans –
- Additional studies that suggest possible development of a “moral sense”?!?
  - Equity: Brosnan (2006) Subject sees other animal receive better reward than it does for same task
    - Comes to refuse poorer reward (which it previously accepted when both recv’d) and/or to do task
      - Chimps refused faster than Cebus, and were more sensitive to other animal’s presence
  - Empathy = emotional synchrony w/sufferer despite lack of threat or pain to self
    - Cetaceans often show distress (wide-eyed, whistling, persistent) when others captured, hurt
    - Chimpanzees, but not Rhesus monkeys, show distress (e.g. pout face) when see other monkey captured
  - ?? Mirror cells may facilitate recognition of goals and help evoke pertinent emotion
  - Self Control = Culturally mandated/cortically mediated restraint(?!?!) Certainly required for “deception”
    - Cetaceans: With what other carnivorous predator would human presume to enter cage, ride, tickle etc?!!
      - i.e. Orca treat trainers as part of pod, even though could consume!
    - Primates: Consider data on deception (e.g. misleading pointing) as example of self-control
      - Also recall “Greedy Giveaway” task and how mediating symbol can help curb “greedy” response
  - Self Recognition Gallup 1970 – Self recognition in mirror via “Mark Test”
    - Primates: Subject exposed to mirror, then mirror removed. Subject anesthetized, forehead marked with paint
      - When it awakens, watch to see if detects paint (does not), then re-expose to mirror
    - Results: Monkey threatned weird “other monkey” it sees; Apes groom themselves to remove paint
      - Interpretation: Only apes have “self concept” that allows them to recognize own reflection
    - Dolphins?? Some researchers attempted this w/Ds. While they may be good candidates, not approp test!!
      - Some dolphins “make faces” at mirror, but could be testing mimicry ability of animal in mirror?!
      - In one test, d’s ignored mark until trainers started to wipe it, then paid repeated visits to mirror (?)
      - What might a species-appropriate test be??!
  - What does “self-recognition” really mean??
    - In humans, seems to develop out of social interaction…
    - Is this related to “Perspective Taking” - Seems a prerequisite for ToM??