

## Psychology – Altruism

Altruistic behaviour is behaviour which is completely selfless. Darwin was puzzled by the prevalence of apparently altruistic behaviour in the animal world. The point is that in any given circumstance an animal ought to behave selfishly. The reason for this is that altruism, in comparison with a strategy that is selfish, would be less successful and therefore would not evolve in competition with non-altruism.

### **Kin Selection Theory**

An individual can increase its genetic representation in future generations by providing help to its close relatives. The gene for altruism is essentially selfish, ensuring its survival. Kin selection may be the most important reason for the evolution of altruism.

Direct Fitness + Indirect Fitness = Inclusive Fitness  
Own offspring Brothers / cousins

Evidence for kin selection - Beldings ground squirrels – Sherman (1977):

- Male squirrels go off to mate;
- Female squirrels seek out foreign, non-family squirrels and kill them and their young;
- The altruism is in helping her relation's genes to spread.

### **Kin Recognition**

How do animals recognise their relations?

Holmes and Sherman (1982): animals that have been reared apart behave much more aggressively toward each other than did animals reared together. Much evidence for kin selection is found in the animal kingdom, especially in the success of brood parasitism: animals believe that animals reared in the same nest are more related.

*The European cuckoo is best known as the bird that lays its eggs in other birds' nests. When the young cuckoo hatches, it pushes the eggs of the host bird out of the nest. In this way it monopolises the parental effort of the host bird while reducing the reproductive success of the host to zero. It would seem reasonable that the smaller song birds typically parasitised by cuckoos would recognise their own eggs and/or offspring and discriminate against cuckoos. However, cuckoo's eggs are very good mimics of their host's eggs with cuckoos specialising in different host species and laying eggs that closely resemble those of the host. The host thus faces a problem, and its behaviour can be understood in terms of the costs and benefits of accepting or rejecting unusual eggs in the nest. If the host bird rejects one egg from its nest (pushing it out and killing it), it may break others in the process. Exposing reed warblers to a stuffed cuckoo on the edge of their nest increases the likelihood that they will reject a model cuckoo egg (Davies et. al 1996).*

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### **Reciprocal Altruism**

Trivers (1971) proposed this explanation for apparently altruistic behaviour. Trivers argued that one animal might show altruistic behaviour toward another if the recipient of this favour reciprocated some time in the future. This can be seen as a "loan" that will be repaid on some future occasion. Wilkinson (1984) found that unrelated vampire bats regurgitate food for one another on their return to the nesting site. While in many instances the recipient of the meal was a relative of the regurgitating individual, often they were not. However, the unrelated animals were usually roosting neighbours of the altruist, and Wilkinson went on to demonstrate experimentally that the exchanges taking place between unrelated individuals were reciprocated.

It could be argued that a cheating strategy, taking a favour but not returning it, would gain more than an honest one. But within the community of vampire bats, the cost of being denied a meal having once cheated is very high because a hungry bat rarely survives on cold nights. Trivers was aware of the possibilities of cheating in such arrangements and suggested that reciprocal altruism would only evolve in species where individuals could recognise each other and apply sanctions to those who refused to reciprocate. Axelrod and Hamilton (1981) put forward a simple explanation that would reward cooperation and discourage cheating. The "tit-for-tat" strategy called for one animal to cooperate with another who would then return the favour. If one party simply returns whatever happened in the previous interaction between the two animals, cooperation would be met with cooperation and defection with returned defection. In this way, a cooperative alliance could be formed between two animals that would jointly benefit both.