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The Selfish Gene Theory and Altruism

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Richard Dawkins first published *The Selfish Gene* in 1976. It was met with controversy and become one of the most talked about concepts in evolutionary biology for years thereafter.

There were bitter debates that raged among scientific communities involving many well known biologists. To this day there are those that support the theory and those who believe it fatally flawed.

The Theory

According to Dawkins' theory, the base unit of evolution is the individual gene.

Since evolutionary fitness is measured in terms of passing on your genes to the next generation, Dawkins theorized that each gene acted in a way that would allow it the best opportunity to be replicated and passed on to the next generation.

Those who disagree with the theory note that individual genes do not control an organism's behavior and that they therefore cannot act selfishly.

Altruism

Altruism is defined as an act that does not benefit the individual that performs it. There are

several species that live in groups and behave in a manner that could be interpreted as altruistic.

See also: The Good Samaritan Experiment [1]

The most extreme examples would be in eusocial animals where individuals give up their right to reproduce to raise the offspring of the queen. To explain this, the theory of kin selection was developed. At the time, the only known eusocial animals were haplodiploid hymenopterans (wasps and bees).

In haplodiploid species, fertilized eggs develop into one sex and unfertilized eggs develop into the opposite sex. In the case of hyemnopterans, unfertilized eggs become males and fertilized eggs become females, creating a stronger relationship between females in a colony.

The theory states that closely related individuals are more likely to have the same genes and thus assisting in the passing on of those same genes to future generations.

Eusociality [2] has since been discovered in several species, not all of which are haplodiploid. Although kin selection may still play a role in eusociality, it has been removed to a more supportive role rather than the main reason behind the evolution of eusociality.

The reasons behind altruism and eusociality remain a topic of much debate in the biological world. For a trait to be carried forward to future generations it must have some type of fitness value. The question is, what value does altruism provide an organism?

Scientists continue to work towards explanations using both digital [3] and traditional frameworks [4]. It is a debate that has also attracted much interest from fields such as sociobiology and psychology because one of the many species that displays eusociality and altruism is human beings.

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Links
[1] https://explorable.com/helping-behavior
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