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Evolution of Cooperation

Natural selection is based on competition between individuals. Cooperation means that individuals help one another. Why competitors should cooperate is a conundrum. Yet cooperation is abundant in nature and can even be seen as the master architect of evolution. Without cooperation there is no construction. The emergence of cells, multi-cellular organisms, animal societies and human language all require cooperation. I present five mechanisms for the evolution of cooperation: kin selection, direct reciprocity, indirect reciprocity, spatial selection and group selection. Direct and indirect reciprocity are the key mechanisms for understanding pro-social behavior among humans and are needed for the survival of intelligent life on earth.

Further Reading:

Nowak MA (2006). Five rules for the evolution of cooperation. *Science* 314: 1560-1563

Nowak MA, CE Tarnita, EO Wilson (2010). The evolution of eusociality. *Nature* 466: 1057-1062.

Nowak MA & Highfield R (2011) *SuperCooperators*. Simon & Schuster.