

# Evolution of language

Martin A. Nowak

Institute for Advanced Study, Einstein Drive,  
Princeton, NJ 08540, USA

Language is the most important evolutionary invention of the last few million years. It was an adaptation that helped our species to exchange information, make plans, express new ideas and totally change the appearance of the planet. How human language evolved from animal communication is one of the most challenging questions for evolutionary biology. The aim of this paper is to outline the major principles that guided language evolution in terms of mathematical models of evolutionary dynamics and game theory. I will discuss how natural selection can lead to the emergence of arbitrary signs, the formation of words and syntactic communication.