

## Abstract

The central theoretical question of sociobiology is explaining how cooperative behavior may have evolved between unrelated individuals. Currently, reciprocal altruism provides the most convincing explanation. However, its validity has been questioned because thus far, no examples of reciprocal altruism in non-human animal species have been found. This thesis reports the results of a series of experiments aimed at investigating the existence of reciprocal altruism in the cotton-top tamarin, a non-human primate species. It begins by reviewing the sociobiological debate surrounding the evolution of cooperation and the empirical literature that has established reciprocal altruism as the most convincing explanation. It then reviews proposed animal models of reciprocal altruism and why they have been disqualified. Next, it presents the results of three experiments aimed at examining the existence of reciprocal altruism in cotton-top tamarins. Experiment 1 demonstrated that cotton-top tamarins are capable of understanding the experimental paradigm and that they will participate in a "game" of reciprocation. Experiments 2 examined whether cotton-top tamarins could distinguish between a cooperator and a defector and modify their behavior accordingly. The results indicated that they could, and that investigating intentionality might be worthwhile. Experiment 3 reran the cotton-top tamarins on the experimental paradigm presented in the first experiment in order to determine the potential effect of experience and learning and also to further examine their understanding of goal-oriented behavior in others. The results of this final experiment were inconclusive. When viewed together, these experiments suggest that cotton-top tamarins meet the basic cognitive prerequisites for reciprocal altruism but that further analysis of learning strategies and intentionality needs to be conducted. The implications for future research using a Prisoner's Dilemma paradigm are also discussed.