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What niche did human cooperativeness evolve in?

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Abstract: The Prisoner's Dilemma (PD) is widely used to model social interaction between unrelated individuals in the study of the evolution of cooperative behaviour in humans and other species. Many effective mechanisms and promotive scenarios have been studied which allow for small founding groups of cooperative individuals to prevail even when all social interaction is characterised as a PD. Here, a brief critical discussion of the role of the PD as the most prominent tool in cooperation research is presented, followed by two new objections to such an exclusive focus on PD-based models of social interaction. It is highlighted that only 2 of the 726 combinatorially possible strategically unique ordinal 2x2 games have the detrimental characteristics of a PD and that the frequency of PD-type games in a space of games with random payoffs does not exceed about 3.5%. Although these purely mathematical considerations do not compellingly imply that the relevance of PDs is overestimated, it is proposed that, in the absence of convergent empirical information about the ancestral human social niche, this finding can be interpreted in favour of a so far rather neglected answer to the question of how the founding groups of human cooperation themselves came to cooperate: Behavioural and/or psychological mechanisms which evolved for other, possibly more frequent, social interaction situations might have been applied to PD-type dilemmas only later. Human cooperative behaviour might thus partly have begun as a cooptation.

Keywords: cooperation, prisoner's dilemma, cooptation, social niche, human evolution

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