

Playing games shows how personalities evolved

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(PhysOrg.com) -- Why do some people co-operate while others are very selfish? Research by the universities of Bristol and Exeter offers a new explanation as to why such a wide range of personality traits has evolved in humans and other social species. The findings are published today in *Proceedings of the Royal Society B*.

‘Game theory’ is used to predict the behaviour of individuals when making choices that depend on the choices of others. First developed as a tool for understanding economic behaviour, game theory is increasingly used in many diverse fields, ranging from biology and

psychology to sociology and philosophy.

Using a mathematical model developed by Professor John McNamara from the University of Bristol, the team adapted the theory to allow individuals playing the ‘game’ to have some variation in their personalities to start with, and to monitor each other’s cooperative tendencies as the game was being played.

McNamara described what happened using this new variation of the game: “What we found is that watching each other’s behaviour produced individuals who were more socially aware, which in turn exaggerated the personality traits of both players. Some became more cooperative – because they became aware of the impact their decisions were making on their reputations – while others became less cooperative and exploited trusting individuals for personal gain.”

In evolutionary terms, this trend is self-perpetuating: variation begets more variation, increasing the gap between those who trusted and co-operated, and those that exploited trusting individuals.

Dr Sasha Dall from the University of Exeter explains: “Our model showed a ‘positive feedback’ loop in which variation encourages social awareness, which favours greater personality divergence, maintaining the need for social awareness. In other words, because people operate in such different ways, we need information to decide whether or not trust to them. This encourages a really diverse range of responses which, in turn, makes social awareness all the more important.”

Although the model focuses on individuals, the findings have implications for understanding whole societies. They are also significant because they offer an explanation as to why variation has evolved in human beings and other social species.

The paper: Evolution of trust and trustworthiness: social awareness favours personality differences. John M. McNamara, Philip A. Stephens, Sasha R. X. Dall², and Alasdair I. Houston.

Provided by University of Bristol

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