

Visible punishment institutions are key in promoting large-scale cooperation

July 26 2019

Social dilemmas are ever-present in contemporary society, with people 'cheating the system' and jeopardising collective outcomes in place of their own personal gains.

Using excess water during summer restrictions, avoiding the payment of taxes and refusing to vote are all examples of cheating a public good.

One way to overcome these social dilemmas is through prosocial institutions—arrangements in which those who don't contribute to a common good get punished. From a mathematical perspective, explaining the origin of these institutions, from individual incentives, is problematic, because it's hard to incentivise individuals to contribute to establish such institutions.

However, new international research has found that one way to overcome these social dilemmas is through visible prosocial punishment—the existence of collective institutions that punish individuals who don't cooperate.

A new computational model shows that the perception of the possibility of punishment (for example, by way of fines) is key to paving the way for the institutions that prevent antisocial behaviour.

Dr. Julian Garcia, Senior Lecturer in Monash University's Faculty of Information Technology, and Professor Arne Traulsen, from the Max Planck Institute for Evolutionary Biology in Germany, found that

punishment in itself isn't enough to promote prosocial behaviour. In addition, the institutions that implement this punishment should be visible and advertised.

"Most modern societies put law enforcement into the hands of institutions and do not allow their citizens to punish others directly," Dr. Garcia said.

"Our modelling suggests that the human instinct against taking the law into our own hands is justified. The value of the signal conferred by the presence of punishment institutions may be crucial in promoting the kind of cooperation we observe in humans.

"These findings are useful in understanding contemporary social dilemmas, and the potential of institutions to solve them."

Researchers used a mathematical and computational model to understand the incentives and effectiveness provided by prosocial punishment in light of the tendency by some individuals to 'cheat' the system.

As opposed to antisocial punishment—where good people are punished by law-breakers in some sort of vengeful way—study findings showed that prosocial [punishment](#) strategies can preserve the public good and generate cooperative behaviour.

"We show that institutions play a role in enabling society to function holistically, not only by implementing punishments to law-breakers, but also through their visibility," Dr. Garcia said.

"This work is also useful in understanding how to design groups of artificial agents in which cooperation is a required emergent feature."

More information: Julián García et al, Evolution of coordinated punishment to enforce cooperation from an unbiased strategy space, *Journal of The Royal Society Interface* (2019). [DOI: 10.1098/rsif.2019.0127](https://doi.org/10.1098/rsif.2019.0127)

Provided by Monash University

Citation: Visible punishment institutions are key in promoting large-scale cooperation (2019, July 26) retrieved 5 July 2024 from <https://phys.org/news/2019-07-visible-key-large-scale-cooperation.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.