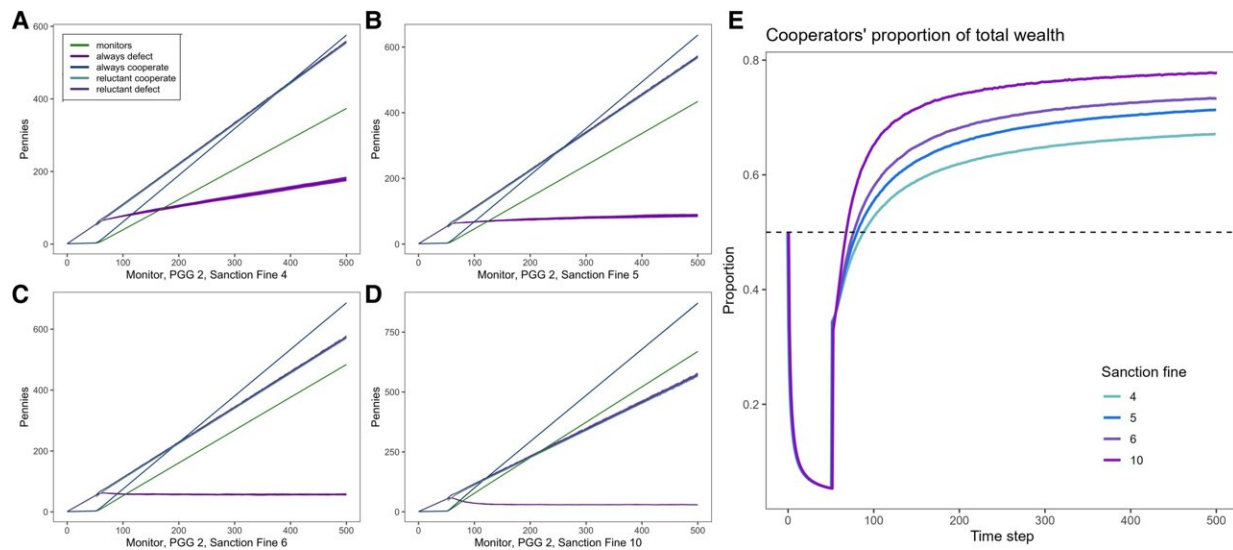


Prosocial influencers can promote societal cooperation

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Sanction fines have a large effect on the ability of prosociality or defection to gain and maintain wealth, as can be seen from the central tendencies of four different monitor outputs with a common resource pool multiplier of 2. Panels A-D depict full 500 timesteps of the simulation and the central tendencies of wealth for each of the agent types. Panel E shows the proportion of wealth that cooperators versus defectors have. Credit: *PNAS Nexus* (2024). DOI: 10.1093/pnasnexus/pgae224, <https://academic.oup.com/pnasnexus/article/3/7/pgae224/7702270>

A modeling study suggests that influential neighbors can be as effective as despotic leaders at promoting social cooperation. Prosocial behaviors

can be difficult to sustain in large societies over the long term, as people give into the temptation to defect to strategies that prioritize the well-being of themselves and their immediate family.

Stefani Crabtree and colleagues constructed a general theoretical framework to explore how cooperation could arise and be maintained in a large [society](#). The authors explore three possible mechanisms for encouraging prosocial actions: neighbors that monitor one another for defection, despotic leaders who monitor and punish at the whole-society level, and influencers that convince neighbors to cooperate.

The research was [published](#) in the journal *PNAS Nexus*.

The authors built mathematical models and simulated individuals playing a common-pool resource game. The simulated society was made up of many types of agents; some agents always cooperated; some always defected; some cooperated and monitored their neighbors for cooperation; and some cooperated only after being caught defecting and punished.

In some cases, the authors included influencers, who recruited neighbors to behave prosocially if the influencer found that cooperation resulted in higher individual gains for themselves than defection did. This strategy produced similar results in terms of average agent wealth as the [strategies](#) of having a strong leader that prevents detected defectors from ever defecting again.

Both influencing and despotic leadership performed much better than monitoring by neighbors. The size of the fine for defecting influenced which strategy was most lucrative, with steep fines promoting [cooperation](#). According to the authors, prosociality can be achieved via a multitude of methods, although punishment of defection is always required.

More information: Crabtree et al. Influential individuals can promote prosocial practices in heterogeneous societies: a mathematical and agent-based model, *PNAS Nexus* (2024). [DOI: 10.1093/pnasnexus/pgae224](https://doi.org/10.1093/pnasnexus/pgae224). [academic.oup.com/pnasnexus/art ... /3/7/pgae224/7702270](https://academic.oup.com/pnasnexus/article/3/7/pgae224/7702270)

Provided by PNAS Nexus

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