

# How to blackmail your family

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Raising kids can be tough, and sometimes you need all the help you can get. Biologists at the University of Bristol argue that some animals might be able to blackmail reluctant relatives into assisting with the rearing of young. The study is published today [2 February] in *The American Naturalist*.

In a Darwinian sense, family members are valuable as vehicles for shared genes. Whether helping evolves depends on a simple cost–benefit calculation known as Hamilton's rule: help if it will lead to a net increase in copies of your genes in the population.

Dr. Patrick Kennedy, lead author and research associate in the School of Biological Sciences, said: "We explored a devious form of manipulation. An individual can threaten to harm its own survival or [reproductive success](#) if relatives withhold help."

Andy Radford, Professor of Behavioural Ecology and co-author, explained: "We considered an overlooked aspect of Hamilton's rule. Animals might increase their value to kin by acting in a way that puts shared genes in jeopardy if relatives fail to help."

The authors used simple kin-selection models to extend the theory of 'blackmail' -first suggested four decades ago by Israeli biologist Amotz Zahavi in relation to parental care—to the evolution of altruism between any relatives.

"The [logic](#) is similar to the 'Doomsday device' satirized in the film 'Dr. Strangelove', added Dr. Kennedy. A Doomsday device is a mechanism that will trigger a disastrous nuclear strike if a rival makes an unwelcome move. "If [animals](#) can tie more of their own survival or reproductive success to a partner's behavior, they can make a threat of self-sabotage credible."

Professor Radford suggested: "Shrewd use of resources may be a promising focus to uncover blackmail among animals. For instance, a mother wasp could lay a large clutch and all but exhaust her energy reserves; unless relatives' step in to help, the babies may not leave the nest alive."

Dr. Kennedy added: "Our paper looked at whether blackmail between kin is theoretically possible. We showed that, under the right conditions, it can indeed evolve. Underlying the illusion of harmonious co-operation, some animals could be making their families an offer you can't refuse."

**More information:** Patrick Kennedy et al. Kin Blackmail as a Coercive Route to Altruism, *The American Naturalist* (2020). [DOI: 10.1086/712349](https://doi.org/10.1086/712349)

Provided by University of Bristol

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