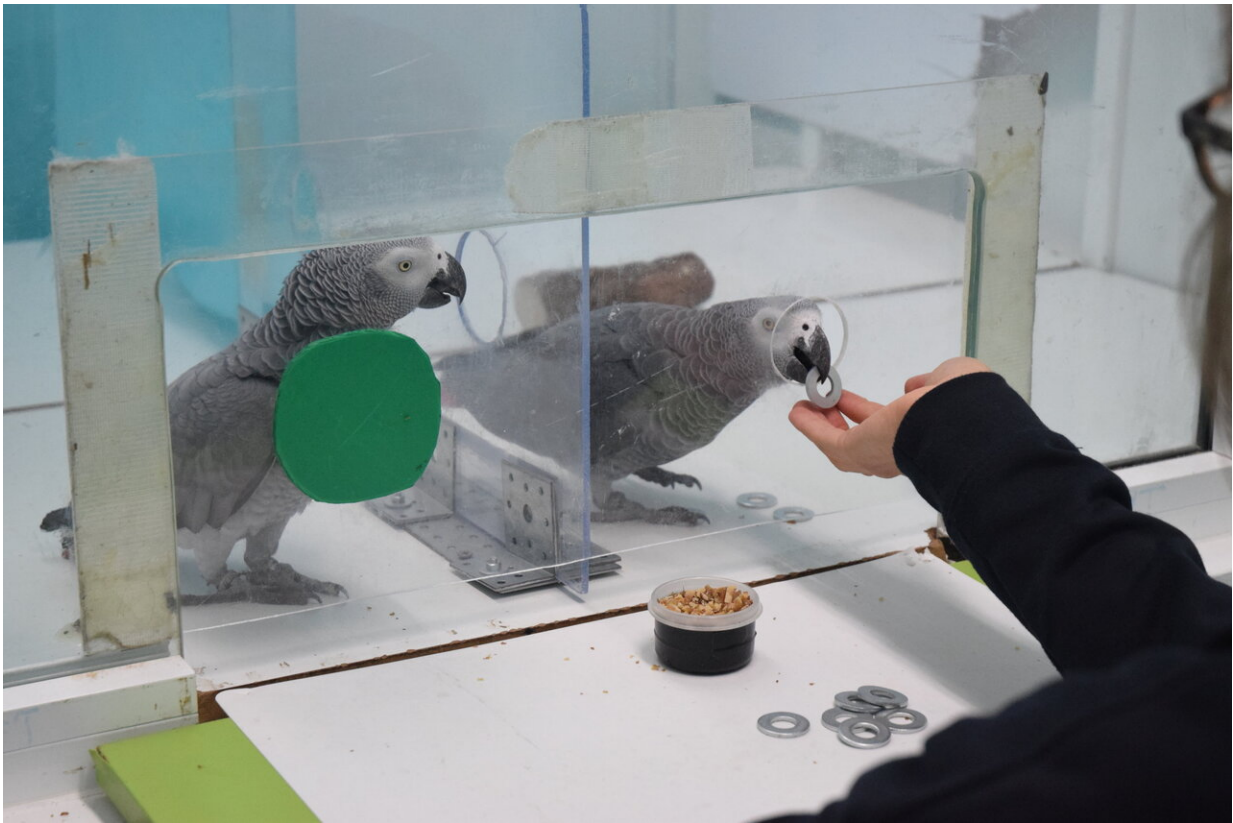


Prosocial and tolerant parrots help others to obtain food

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In the behavioral experiments, the parrots receive metal tags, which they can then exchange for food. Credit: Comparative Cognition Group

Parrots are considered extraordinarily clever animals. Alex, the famous Harvard-based African grey parrot, communicated with a vocabulary of

more than 500 human words, could answer questions and classify objects spontaneously. Scientists from the Max-Planck-Institute for Ornithology based at the research station outpost for parrot comparative cognition in the Loro Parque in Tenerife, Spain, have shown that parrots exhibit a high level of social intelligence and cooperativeness. They readily help others, even when there is no immediate opportunity for reciprocation. Moreover, they reciprocate received favours and do not appear jealous, if conspecifics obtain a better reward than themselves. This further supports that they have evolved a level of intelligence comparable to that of great apes, crows and dolphins.

In the laboratory in the Max-Planck-outpost research station for comparative cognition run in collaboration with the Loro Parque Fundación, in Puerto de la Cruz, Tenerife, the African grey parrot Bella obtains a few metal tokens from a human experimenter. She has learnt to exchange those tokens with one of the scientists for her favorite food. But there is a problem—the exchange hole in her testing chamber through which the exchange occurs has been blocked.

In the neighboring test chamber her friend Kimmi is waiting. Her exchange hole for the token exchange is open. However, Bella notices that Kimmi is lacking any tokens. What is he going to do?

Indeed, the parrot female picks up token after token and passes them over to Kimmi through an opening in the wall separating the two neighbouring chambers. The latter, seemingly pleased, accepts those gifts and readily exchanges them against treats. Bella in the meantime, rather relaxed, observes how Kimmi benefits from her generosity, without knowing that at a later point in time, the other may return the favor.



If a bird does not receive a tag, the neighbor often passes on its own and thus forgoes its own reward. Credit: Comparative Cognition Group

Helping partners

According to the most recent scientific findings, other than humans, only some great apes species behave similarly selfless towards unrelated individuals in comparable studies. In contrast, all other species tested so far in did not seem to pay attention to the wellbeing of conspecifics. They either behaved indifferently or even selfishly in comparable test situations. "Our parrots indeed seem to have grasped that another individual requires their help in order to achieve a goal," says Désirée Brucks, first author of the study. If Kimmi's exchange hole was blocked too, however Bella did not bother to pass over tokens. The African grey

parrots therefore appear to recognize exactly when a conspecific actually benefits from their help and when it would not.

In a second study, the same parrots proved their general 'prosocial attitude,' i.e. their willingness to help and capacity to attend to the wellbeing of others. Besides, they showed the ability to reciprocate the other's previous actions, following a 'tit-for-tat' strategy, which is seen as an important prerequisite for the evolution of cooperation. In the experiment, the birds had to decide between two types of tokens. One of them rewarded just the subject, whereas the other token provided food to both the subject and its neighbor. "Initially the parrots chose randomly, without paying any attention to the wellbeing of their neighbor," explains Anastasia Krasheninnikova, first author of this study. "As soon as the parrots were tested alternately with their neighbor, they very rapidly learned to choose the token that benefited both birds."

No jealousy if others get better treatments

Furthermore, the research team has shown in a third recent study that parrots apparently are not jealous if a conspecific receives a better payoff for the same work performance than themselves, or has to work less hard for the same payoff. "At first, this finding came as a surprise, given that a "sense of fairness" is considered a prerequisite for the evolution of cooperation," says Auguste von Bayern, the leader of the comparative cognition research group. If you are able to detect when somebody is cheating upon you, you can react and switch to a fairer and thus better cooperation partner.

Whereas the parrots remained easygoing, primates, for example, do not put up with such an unequal treatment but show clear signs of anger and at some point boycott the unfair game. Possibly, the explanation for this is that parrots tend to be life-long monogamous, i.e. they remain pair-

bonded with a single partner throughout their lives, whereas primates typically maintain affiliative relationships and/or coalitions with several partners in parallel and switch partners often as new opportunities arise.

"Given that parrots are so closely bonded with a single individual and thus so mutually interdependent, it does not make any difference if one of them gets a better pay-off once in a while. What counts is that together, they function as a unit that can achieve much more than each of them on their own (in addition to raising their joint offspring). This is probably why [parrots](#) are much more tolerant towards unequal treatment than species that are not long-term monogamous, while still being excellent cooperators," explains Auguste von Bayern.

More information: Parrots voluntarily help each other to obtain food rewards, *Current Biology* (2020).

Provided by Max Planck Society

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