Squabbling meerkats make better decisions

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Meerkat. Credit: Wikipedia/Fir0002/Flagstaffotos/Under the GFDL v1.2.

Conflicting interests within a group can lead to better collective decisions – if you're a social animal such as a meerkat – according to new research by a team of biologists and political scientists from the Max Planck Institute for Human Development in Berlin and the London School of Economics.

The research, published in the November issue of the journal The *American Naturalist*, shows that far from hampering decision-making,

conflict can lead to better results. However, this depends on individual animals sharing the group's overall goal to, for example, search for food, avoid becoming prey, to shelter or rest. The researchers developed a decision-making model which demonstrates that if individuals in a group have slightly different small-scale goals they are less likely to make the same mistake as another individual in the group, than would be predicted by 'chance'. The differing goals within a group are a result of animals trying to optimise their own personal gains from a decision.

Professor Christian List, one of the researchers from LSE, said: "Collective decisions in groups where there are lots of minor disagreements actually offset errors made by individuals. Counterintuitively, this means that the 'quality' of a decision for a group as a whole may improve with the number of differing decision-makers within it – although this plateaus at a certain number of animals. In these kinds of groups it is better to share decisions with others than to make decisions independently, with like-minded individuals only, or to follow a dictator or leader."

For example, if there are two patches of ground and one is good for food and the other is not, then a group with diverse goals is much more likely to choose the good patch accurately than the group with uniform goals. In this way, everyone in the group profits from the 'conflict'. Decisions are made, in spite of the conflict, because it is not usually in the interest of a social group to fragment.

Dr Larissa Conradt, one of the authors of the research from the Max Planck Institute for Human Development in Berlin and an expert in animal group decisions, said: "Our results showed that shared decisions, made by animals without conflict, were often surprisingly poor. It's possible that this could be applicable to human collective decision making and would provide a strong argument for not excluding different or minority factions from collective decisions." Previous studies that

have looked at 'swarm intelligence' in biology have largely ignored the issue of conflict. However, individuals within animal groups often differ on smaller-scale goals, because of their personal needs. Vulnerable animals might prefer a safer migration route over a shorter one – in contrast to a stronger animal. Smaller animals might choose a foraging patch with higher forage quality while larger animals might favour a patch with a higher quantity of food.

More information: Conradt, L., List, C., Roper, T. J. "Swarm Intelligence: When Uncertainty Meets Conflict." *American Naturalist* Volume 182, Issue 5 (2013) (DOI: 10.1086/673253)

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