

How conflicts spread through monkey societies

September 7 2017



A pigtail macaque shows its "game face." Credit: A.J. Haverkamp

How does conflict spread through a society? One way to think of conflict spreading is to picture an epidemic, with aggressive individuals "infecting" others and causing them to join the fight.

While studying the dynamics of conflict in a monkey society, researchers Edward Lee (Cornell), Bryan Daniels (ASU-SFI Center for

Biosocial Complex Systems), David Krakauer (Santa Fe Institute), and Jessica Flack (Santa Fe Institute), found evidence for a more complicated structure behind conflict. Whereas the simple picture can be accurate for figuring out who will join a conflict, it is not enough to forecast how long the conflict will last. Their findings are published in a recent issue of the *Journal of the Royal Society Interface*.

Krakauer points out that if we view conflict as contagion, we might expect that the time it takes for a new conflict epidemic to die down would increase with each newly "infected" individual. In other words, each new participant simply adds to the total fight duration. Instead, Lee and colleagues found that fight durations grow more quickly as others join. It appears that it is not individuals who control the length of fights, but the relationships between pairs of individuals.

Imagine you are hosting a large dinner party. How long will you need to stay up? If the invitees are busy that week, each person might arrive at a different time but only stay for an hour. For each additional invitee, you simply add to the total duration of the party. But imagine that each person wants to talk with everyone else before leaving. If it is hard for more than a few conversations to happen at a time, then dinner will have to last until each pair of individuals has a chance to converse. This is how conflicts grow in duration, Lee says. More individuals mean more possibilities of conflict between pairs of individuals, and each of those pairwise relationships must be separately resolved.

Daniels says this finding suggests that "conflicts that grow big tend to get out of control," and "there are hints that a similar pattern may be at work in some human conflicts."

By studying statistical variation in the observed fights, the researchers found evidence that conflict duration is strongly affected by the first interaction, which sets the tone for the fight. If the first interaction is

brief, then following episodes are likely to be just as brief. A long drawn out initial brawl, however, will be followed by similarly difficult episodes. This, Flack says, "is a signature of collective memory," meaning "the [duration](#) of the conflict is not just determined by individuals independently deciding whether to continue fighting or drop out, but through their joint memory for the past and subsequent collective decision-making."

Lee points out that interventions by uninvolved third-parties could be designed to stop conflicts that are likely to get out of control by watching closely how a fight starts and making a decision about when to intervene based on the features of this initial interaction. However, an open question is how much conflict to allow. Just as small fires in a forest clear out brush so that devastatingly large wildfires do not occur, small conflicts may play a useful role. By predicting how fights evolve, external monitors may be able to promote useful mild [conflict](#) but prevent harmful all-out brawls.

More information: Edward D. Lee et al. Collective memory in primate conflict implied by temporal scaling collapse, *Journal of The Royal Society Interface* (2017). [DOI: 10.1098/rsif.2017.0223](https://doi.org/10.1098/rsif.2017.0223)

Provided by Santa Fe Institute

Citation: How conflicts spread through monkey societies (2017, September 7) retrieved 23 April 2024 from <https://phys.org/news/2017-09-conflicts-monkey-societies.html>

<p>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.</p>
--