

Contrasting views of kin selection assessed

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In an article to be published in the January issue of *BioScience*, two philosophers tackle one of the most divisive arguments in modern biology: the value of the theory of "kin selection."

Kin selection is the idea that because genes influence behavior, and because an animal that helps its relatives helps to spread genes likely identical to its own, animals will evolve to favor kin. Researchers have spent decades testing this explanation for apparent animal altruism, but in recent years, critics, notably Martin Nowak of Harvard University and the famous naturalist and writer Edward O. Wilson, have argued that the theory's successes are mostly illusory. The dissidents maintain that social behavior is properly understood by studying how evolution works in groups of individuals that may be unrelated. The critique provoked a strong backlash.

According to the authors of the *BioScience* article, Jonathan Birch and Samir Okasha, the disagreements can be traced in large part to loose use of some key terms as well as to differing ideas about what sort of account can provide an adequate explanation. Biologists have linked their mathematical models to the central formula of kin selection, known as Hamilton's rule, in different ways. Some models are greatly limited by assumptions that are not realistic. Others can always be made to fit the facts of a population, but have a limited ability to generate predictions, as opposed to after-the-fact rationalizations. And some fall between these extremes.

Some of the criticism of kin selection applies only to the most limited

models, Birch and Okasha judge. On the other hand, they suggest that defenders of kin selection should recognize limitations of the approach that may prevent researchers from extending it, as an explanation of [social behavior](#), as far as its proponents might hope. The *BioScience* authors suggest that consideration of "causal aptness" might help in deciding when kin selection is a useful theory, and when alternatives might be preferable—although they acknowledge that "causal aptness" is an idea that needs further development.

Both sides in the kin selection debate and related arguments in social evolution have got some things right, Birch and Okasha write, but they have sometimes talked past each other. Still, Birch and Okasha assert that "progress on these issues is achievable if rival camps of researchers are able to communicate and cooperate, rather than pursuing divergent research programs."

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