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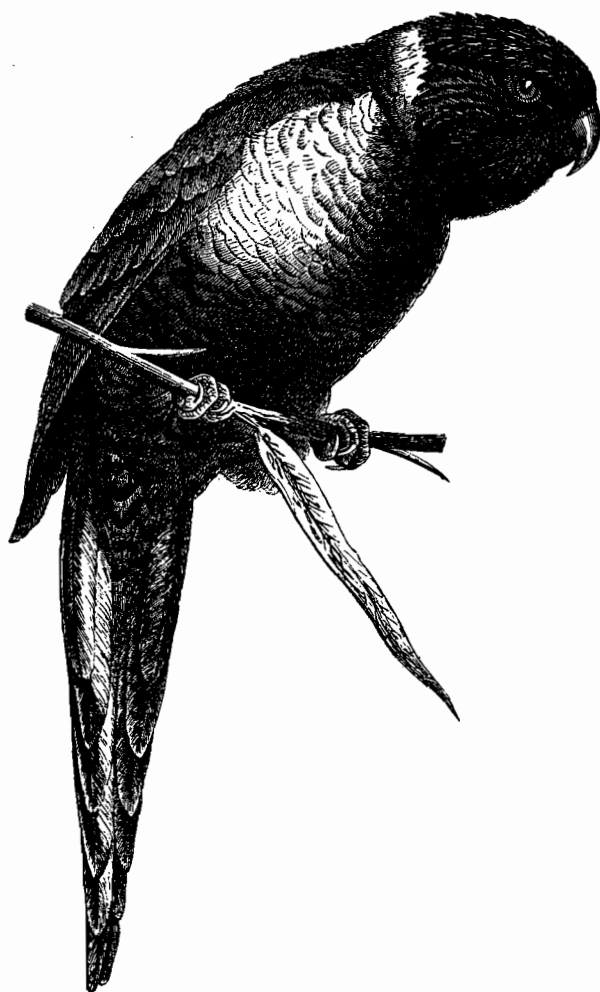
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Response: Some Problems and Prospects for Cognitive Ethology

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In his excellent review of the first volume of our two-volume anthology, *Interpretation and Explanation in the Study of Animal Behavior*, Kenneth Shapiro provides a provocative account of the strengths and weaknesses of cognitive ethology. We would like to take this opportunity to highlight and extend some of Shapiro's points, and to explain more fully what we hope to accomplish in our work on cognitive ethology.

One of our motivations, like Shapiro's, is practical. Although there is no purely logical connection between views about mental continuity and views about moral continuity, we believe that there are important psychological connections. In our view, a culture which recognizes its behavioral and emotional kinship with nonhuman animals is one that is likely to recognize its moral kinship as well (Bekoff and Jamieson 1991; Wuensch *et al.* 1991; Rollin 1989). The moral case for changing our behavior with respect to nonhuman animals has been convincingly argued by many philosophers (see for example Singer 1990, Regan 1983, and Sapontzis 1987). We see our work in cognitive ethology in part as contributing to the epistemic infrastructure that will make such moral views more widely accepted.

Our motivations are also theoretical. In the post-World War II period, especially in the United States, philosophy and biology have increasingly become estranged. To many biologists philosophy has seemed irrelevant or even



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antagonistic. Other biologists feel that philosophers who do take biology seriously set themselves up as the True Guardians of the Scientific Method. To philosophers, on the other hand, biology, especially the study of animal behavior, has often seemed mindlessly empirical. Often what matters are publishable results rather than their meaning or significance. In our view philosophy and biology together can help create a science that is empirically attuned, conceptually rigorous, and socially responsible. We hope that our anthology, as well as our recent papers (Bekoff and Jamieson 1991a, Bekoff and Jamieson 1991b, Bekoff and Jamieson 1990), are contributions towards this goal.

Shapiro rightly points out that despite some ingenious studies and bold hypotheses, cognitive ethology is at this time a rather primitive research program. Cognitivists replace the mechanical metaphors of the behaviorists with more up-to-date electronic ones, but in both cases the fact of animal minds seems to escape the metaphors (Griffin 1984). Part of the problem, also noted by Shapiro, is that the view of the mind found in studies of animal behavior often seems to oscillate between positivism and Cartesianism: either the mind does not exist, or it cannot be scientifically studied. All of this leads Shapiro to formulate a dilemma for cognitive ethology: either it will develop into a reductive physiological science; or it will become an anthropology of nonhuman animals, lacking in scientific standing. We agree that these are real dangers, but we are not as pessimistic as Shapiro.

We should first appreciate how far we have come. Even if the cognitivist models are uncomfortably similar to behaviorist ones in their failure to make room for subjectivity, still it is a great achievement that we are moving towards an integrated view of behavior. Although behaviorists gave lip service to the idea that the same mechanisms are at work in both humans and nonhumans, as a matter of fact their theories provided little explanatory power with respect to humans. Thus behaviorism degenerated into the study of (mainly) rats and pigeons, with only true believers clinging to the hope that one day common sense psychology might be replaced by a behaviorist vocabulary (Skinner 1971). Cognitivist models are still relatively undeveloped, yet it appears that they have great explanatory power over a broad range of human and nonhuman behavior (Ristau 1991).

As for Shapiro's dilemma, it seems to us that what is required to break out of it are new conceptions of both science and the mind.

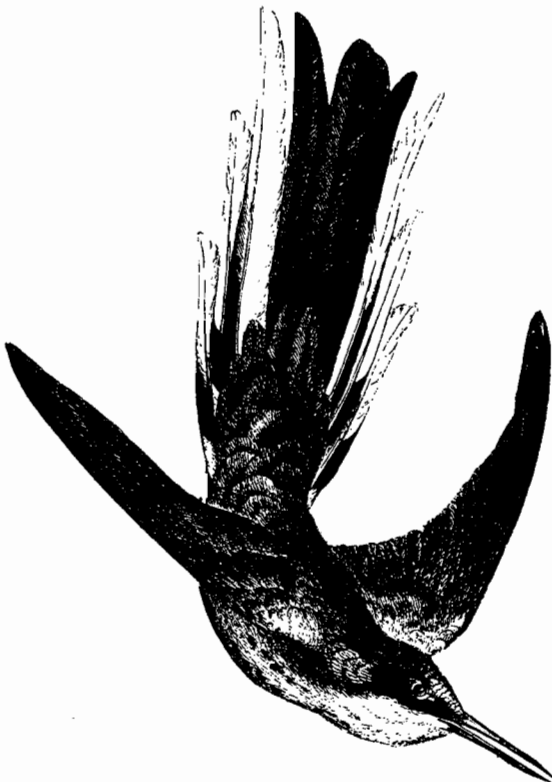
Increasingly in the American academic community science has come to mean the systematic empirical pursuit of any statistically significant effect. This notion of science is too narrow, since understandings of nature may involve conceptual as well as empirical elements and may not lend themselves to quantitative representations and tests of statistical significance. This conception is too broad, since many effects are trivial, and identifying them does not lead to a deeper understanding of nature. If science is to continue to enjoy its current levels of interest and support, this conception of science which focuses on methodology must give way to one which emphasizes understanding.

Part of why cognitive ethologists oscillate between positivism and Cartesianism is because these are both deeply rooted and attractive ways of thinking about the mind. Various mid-twentieth century philosophers (for example, Wittgenstein 1953) have tried to articulate alternative conceptions of the mind, but they are often difficult to grasp (even by philosophers) and resist operationalizing. While we can identify mental states in ourselves and others, and while mentalistic explanations often seem to provide understanding, it is very difficult to say what the mind is in general (much less what consciousness is). It may be that our best understandings of sentient and intelligent nature will lead us away from such concepts. At this point, however, cognitive ethologists can console themselves with the knowledge that their discipline is an aspect of the broader field of cognitive studies and conceptually may not be in any worse shape than highly regarded, related fields such as cognitive psychology. We are a long way from understanding the natural history of the mind, but in our view this amounts to a scientific challenge rather than grounds for depression or dismissal. (We thank Lori Gruen and John A. Fisher for their comments on an earlier draft.)

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Reply

Kenneth Joel Shapiro

I am pleased to see that Bekoff and Jamieson (B&J) and I are in substantial agreement on many of the issues raised in volume I of their recent book and in my review of it. In particular, I agree with them on the following:

1. Recognition of moral kinship with nonhuman animals is likely to follow recognition of "behavioral and emotional kinship."
2. Cognitive ethology can provide an "epistemic infrastructure" necessary for the philosophical argument for and the public acceptance of that kinship. We should add that the emerging subfield of "animal studies" also can make an important contribution to that necessary empirical base. This enterprise, which provides social scientific studies of the ways in which nonhuman animals figure in our lives, already has given rise to academic programs and journals (*Anthrozoos* and the forthcoming *Society and Animals*).
3. Cognitivism is responsible for some recent gains in the re-minding of nonhuman animals, a necessary move in the recognition of kinship.

And, in particular, I believe B&J agree with me on the following:

1. Cognitive ethology has residual problems—notably, an adherence to methodological behaviorism, which, at times, revisits the limitations of its predecessor, behaviorism proper, and an over-reliance on the metaphor of the computer, which metaphor fails "to make room



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