Comments on V. S. E. Falger's
review of *The Evolution of Co-operation*

Comment by Robert Axelrod

The heart of Vincent Falger's criticism is that 'as soon as differences in power show up, the co-operation model does not work any more'. In particular, he says, in international relations 'the question of who is the stronger party will dominate all other issues'. I disagree. In a world of nuclear weapons, the real and perceived differences in power between the United States and the Soviet Union will never completely dominate the plain fact that either can destroy the other. Thus, both have an incentive to co-operate, even though both would prefer that the other side be a little more forthcoming than it actually is. This is exactly the situation modeled by the iterated 'prisoner's dilemma', the subject of my book.

As to whether my theoretical model of the iterated prisoner's dilemma is relevant to understanding animal social behavior, I refer the interested reader to the following applications of my model by evolutionary biologists.

Maynard Smith, J. (1982). *Evolution and the Theory of Games* (chapter on 'The evolution of co-operation'). Cambridge: Cambridge University Press.

Trivers, R. (1985). *Social Evolution* (chapter on 'The evolution of co-operation'). Menlo Park, California: Benjamin Cummings.

Lombardo, M. (1985). Mutual restraint in tree swallows, a test of the TIT FOR TAT model of reciprocity. *Science*, 15 March, pp. 1363–1365.

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Comment by Anatol Rapoport

I have been invited to comment on Dr Falger's review of Robert Axelrod's *The Evolution of Co-operation*. The task presents something of a problem. I want to be fair to both the author and to the reviewer. In the case of the former, I am on surer ground, since I share his views on the implications of game-theoretic analysis, both in the context of human affairs and in that of biological evolution. Even here, however, because my intent is to defend these views against some of Falger's criticisms, I feel somewhat wary about