



Altruism Revisited

Unto Others: The Evolution and Psychology of Unselfish Behavior by Elliott Sober; David Sloan Wilson

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ALTRUISM REVISITED

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UNTIL OTHERS: THE EVOLUTION AND PSYCHOLOGY OF UNSELFISH BEHAVIOR.

By Elliott Sober and David Sloan Wilson. Cambridge (Massachusetts): Harvard University Press. \$29.95. xi + 394 p; ill.; index. ISBN: 0-674-93046-0. 1998.

Social and behavioral scientists constitute a large new audience for evolutionary theorists, making it more important than ever that they communicate their theory structure and evidentiary requirements clearly. Sober and Wilson provide the crucial service of steering this wider audience toward the research and models that will be central to the application of evolutionary theory to the social sciences. The book comes in two parts: first, the authors review and analyse the status of group selection in evolutionary biology, and second, they address a debate within psychology concerning what account of

motives best explains people's actions when they perform unselfish behaviors.

In what is perhaps the most significant part of the book for practicing biologists, Sober and Wilson investigate the professional neglect of W D Hamilton's very early (1975) endorsement of the multilevel selection approach developed by G Price. The multilevel selection models make it clear that genetic relatedness is only one of many ways to achieve the assortment into groups required by a process of selection at the group level. Especially helpful is the emphasis on the fact that game theory and kin selection models do not compete with multilevel Price-type models; rather, they are all different ways of looking at evolution in group-structured populations. The authors support their claim of equivalence by showing the structural identity between these game theory models and a multilevel selec-

tion model, in which the outcomes of the model are seen as results of a balance between levels of selection; this conclusion is also supported by Rapaport's own views on his game, Tit-for-Tat.

According to Sober and Wilson, the apparent incompatibility of game theory and multilevel models results from interpreting the game theory models as individual selection models, which is just an instance of the "averaging fallacy." This averaging fallacy is a useful shorthand for a type of error that has plagued discussions of complicated selection processes: the mistake is to confuse the outcome of an evolutionary model (e.g., "the average A type is more fit than the average S type") with the exclusive operation of individual selection to produce that fitness difference. Such an approach confuses the causal processes that contributed to that evolutionary outcome with the outcome itself. Predictably, response to Sober and Wilson's emphasis on Hamilton's changeover to a nongenetic-relatedness approach has been glossed over by every reviewer critical of their thesis, thus continuing the trend Sober and Wilson document in their citation analysis.

While Sober and Wilson's views on multilevel selection will seem obvious to those already convinced of its importance, I doubt that those opposed to their account of the theory would be persuaded by the arguments and evidence offered here. Sober and Wilson's case for group selection may be hurt, for example, by their inattention to the distinction between the *process* of group selection and a potential—but not necessary—*product* of that process, an adaptation at the group level. Although they acknowledge the difference between process and product (at the group and organismic levels), this distinction is blurred during their discussion of various models and empirical evidence.

The authors offer a definition of a group as a set of individuals "that influence each other's fitness with respect to a certain trait but not the fitness of those outside the group" (p 92). Such groups are defined primarily in terms of their fitness effects; appropriately, they do not have to possess group-level adaptations in the traditional, engineering sense as uniquely evolved, accumulated characters. Unfortunately, Sober and Wilson then slip into talking about evidence for group selection (as a process) being evidence for group adaptations, such as altruism (as a product). The problem is that group selection can occur without a group adaptation evolving, just as individual selection can occur within a population without a novel, unique engineering aid-to-life evolving (a "strong" adaptation). Think of Kettlewell's moths: the adaptation is the change in frequency in the population of dark color, a trait that was present preselection; there was a selection process and evolutionary change, but no new product. If, on the other hand, any as-

pect of an organism (or group) that contributed to survival and reproduction in a selection context counts as an adaptation, then Kettlewell's moths did adapt, in this "weak" sense.

Sober and Wilson switch between these two senses of "adaptation" without clarification, although many of their discussions suggest that they use the term in the "weak" sense. Nevertheless, they are primarily concerned with establishing that altruism—a "strong" adaptation—is a widespread result of group selection. Much of the evidence they appeal to, however, involves only "weak" adaptations. M Wade's experiments demonstrate the efficacy (and ubiquity) of evolutionary change by group selection (i.e., evolutionary change in the population of groups; they do not show the evolution of adaptations in a "strong," engineering sense, nor does anyone claim they do). In fact, the most persuasive evidence of group selection in the book is W M Muir's chicken breeding experiment, in which groups of egg-laying hens were subjected to Wade's group selection protocol (pp 121–123). Even though these chickens had been professionally bred for decades, group selection produced a 160% increase in annual egg production in just six generations. Skeptics of the effectiveness of group selection will have trouble accounting for these results, but notice that the evolved group trait is not necessarily an adaptation in the strong sense.

One of the most important steps in the revival of group selection models was to distinguish between an effective process of group selection, and the evolution of a trait "for the benefit of the group," a strong adaptation in the engineering sense. This is because G C Williams, J Maynard Smith, and other opponents to group selection were arguing against the production of group adaptations in the strong, engineering sense; they were not concerned with the efficacy of group selection processes per se, in the absence of strong group-level adaptations.

Therefore, some of the empirical evidence of group selection that Sober and Wilson cite does not necessarily support the claim that they want to make: that natural selection has operated on human groups, and that strong adaptations have accumulated at the group level as a result. As they acknowledge only in passing, this is because groups can participate in a selection regime without accumulating "strong" group-level adaptations (it depends on the population structure, inheritance mechanisms, and other parameters).

Most fundamentally, Sober and Wilson fail to drive home their crucial point: using the universally accepted analysis of the requirements for a selection process, there are components of genetic fitness from group interactions within the environment in just the same way that there are components of fitness from organismic interactions with the environ-

ment. If the latter situation is called “organismic selection” (which it is), then the former situation should be called “group selection” (which it usually has not been). I fear that people will think that the authors are suggesting some radical (and useless) *new* terminology, instead of simply cleaning up the structural anomalies and errors in the standard terminology.

The second half of the book presents empirical psychological evidence and philosophical discussion of the hypothesis of psychological pluralism, i.e., that some of our ultimate desires are other-directed, that we have an ultimate concern for the well-being of others, and are sometimes motivated by it.

Biology-minded readers may be unfamiliar with the philosophical, anthropological and psychological results discussed here, but Sober and Wilson make a strong case that the hypothesis of psychological egoism—that all our ultimate desires are self-directed—has been accepted as a default view by both psychologists and evolutionary biologists despite the lack of compelling reasons or evidence. Usefully, the authors acknowledge the limitations of their own analysis, concluding that the scientific status of both theories (pluralism and egoism) remains undecided, but they conclude that there are compelling reasons to pursue the former theory.

Sober and Wilson launch an intriguing argument that psychological pluralism is more evolutionarily plausible than psychological egoism, on the basis of considerations of reliability, efficiency and availability. Again, it is doubtful that this analysis will

convince those firmly committed to psychological egoism, but it serves the valuable function of highlighting precisely how difficult it is to support egoism using evolutionary considerations without trivializing it.

Thus, evolutionary theory may be brought into an unresolvable debate within psychology to weigh in favor of pluralism and against egoism. This is the standard move in evolutionary psychology, and it seems to work well here. But note that it puts the usual evolutionary psychologists in a real bind: they endorse the strategy of bringing in evolution to resolve debates in psychology, but they are also on record as rejecting all hierarchical selection approaches. Whatever the ideological or parochial reasons for the failures of current practitioners to recognize the viability of multilevel selection approaches, they surely cannot continue to cite Hamilton’s early kin selection models while neglecting his own later reanalysis of them. It will be interesting to see which way they go, now that the relevant genetical models have been made more accessible to their audience.

In sum, although Sober and Wilson’s primary target is the idea that evolutionary theory provides a foundation for individualism in the social sciences, the book is also quite valuable for biologists. *Unto Others* gives a useful, critical synthesis of developments in evolutionary theory, social psychology, and approaches to evolutionary psychology. This unique and ambitious book is likely to provoke new and fruitful research on the borders between evolutionary biology and human psychology.