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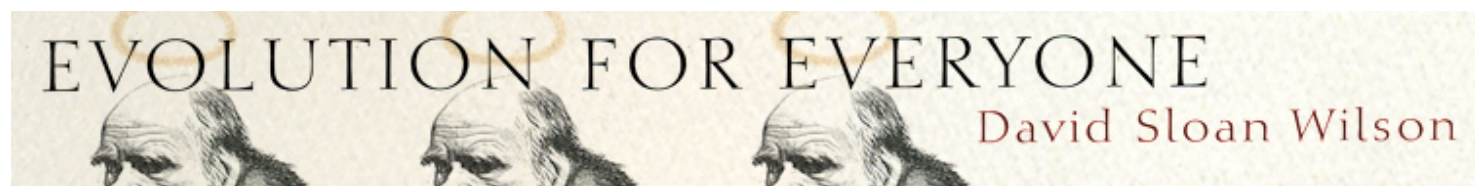
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## Profile



I am an evolutionist who studies all aspects of humanity in addition to the biological world, as I relate in my book *Evolution for Everyone: How Darwin's Theory Can Change the Way We Think About Our Lives*. In addition to my academic research, I manage a number of programs and websites for expanding evolution beyond the biological sciences in higher education ([EvoS](#)), public policy formulation ([The Evolution Institute](#)), community based research ([Binghamton Neighborhood](#)

[Project](#)) and the study of religion ([Evolutionary Religious Studies](#)).

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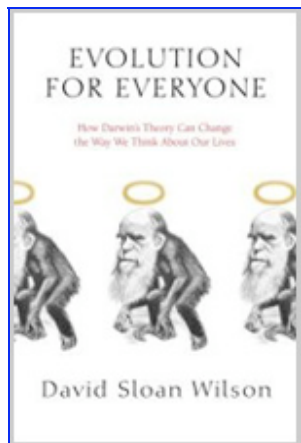
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## [Truth and Reconciliation for Group Selection XIX: Happily Ever After](#)

Category: [Truth and Reconciliation in Group Selection](#)

Posted on: November 17, 2009 4:48 PM, by [David Sloan Wilson](#)

We have reached the end of the T&R series. In a truth and reconciliation process, truth is required for reconciliation. There must be a consensus on *what happened*, even if all wrongs cannot be righted. I have had my say on what happened during the group selection controversy. Anyone who wishes to challenge my account is welcome to do so. This period in the history of evolutionary thought deserves the same kind of scholarship that is lavished upon Darwin and his contemporaries. The more scholars the merrier. Much of what I have reported in the T&R series is drawn from my book with Elliott Sober, [Unto Others](#), which was published in 1998 and has largely withstood the test of time. I'd like to think that Samir Okasha, author of the highly respected [Evolution and the Levels of Selection](#) (2006), agrees with my account. If not, I hope he will speak up.

Once a consensus is reached on what happened, scientific inquiry can proceed in a more unified fashion than before. I end this series with a summary of what a fully reconciled field of sociobiology will look like. For a more detailed account, please consult my 2007 article co-authored with E.O. Wilson titled "[Rethinking the Theoretical Foundation of Sociobiology](#)".

**1) The original problem is the fundamental problem of social life.** Darwin put his finger on the key problem with the evolution of social adaptations. Traits that are "for the good of the group" are not necessarily locally advantageous. If they evolve, it is not because individuals bearing the trait survive and reproduce better than individuals bearing alternative traits in their immediate vicinity. This deserves to be recognized as the core problem of sociobiology.

**2) There is only one solution to the original problem.** If a trait is locally disadvantageous wherever it occurs, there is only one way for it to evolve in the total population--by being advantageous at a larger scale. Groups of individuals displaying social adaptations must survive and reproduce better than other groups, to counterbalance the disadvantage of the same adaptations within groups. All evolutionary theories of social behavior embody this logic. The groups and fitness differentials within and among groups are there for anyone to see, once one knows what to look for.

**3) Selection within and among groups are factual matters, not matters of perspective.** Once the groups relevant to the evolution of a particular trait are identified (something that all models of social behavior must do), selection within and among groups can be straightforwardly measured--in a model, experiment, or nature. The question of whether a given trait evolves on the strength of within-group

selection, between-group selection, or a combination or both has an answer upon which everyone can agree.

**4) The categorical rejection of group selection in the 1960's was an error, pure and simple.** It is simply not the case that lower-level selection invariably trumps higher level selection. Period. End of discussion. Textbooks and other accounts that imply otherwise need be revised. The erroneous rejection of group selection was especially tragic because it made the only solution to the original problem appear wrong, motivating a search for other solutions that in retrospect turned out to be the only solution in disguise. Why would anyone want to perpetuate this confusion once it is seen clearly?

**5) If it walks like a duck and quacks like a duck, maybe it's a duck.** Avoiding a stigmatized term makes sense as a short-sighted strategy for avoiding controversy, getting your article published, etc., but it is no way for a scientific discipline to conduct itself. If scientists aren't going to keep careful track of what was said and meant during the history of a given subject, who will? Failing to mention group selection when discussing issues that have always been central to the group selection controversy is poor scholarship and should be grounds for rejection in a peer review journal.

**6) Derived issues associated with the group selection controversy should not be confused with the original problem.** From Darwin to Dawkins, group selection has been centered on the original problem, as I have shown in considerable detail. During the last few decades, however, a number of other issues have arisen. The first thing we need to know about these derived issues is that they do not bear upon the original problem. Secondly, we need to evaluate them on their own merits. A short list of derived issues includes the following.

**7) My formula is better than yours.** Given the same set of biological assumptions about the evolution of a given trait, there is more than one way to calculate what evolves in the total population. Some methods highlight local fitness differentials in addition to the global outcome. Other methods report only the global outcome, for example by averaging the fitness of individuals across groups or the fitness of genes across all contexts. Since all of the methods make the same biological assumptions, the differences between them are empirically empty, as Andy Gardner put it (see [T&R XVIII](#)). Nevertheless, one might be preferable to another based on other criteria, such as the compactness of the formula or certain insights that are highlighted by some formulations and obscured by others. For example, Hamilton's original formulation of inclusive fitness theory obscured the fact that altruism is locally disadvantageous even in family groups, which jumps out of the Price equation. However, the Price equation can misclassify a nonsocial trait that evolves by pure individual-level selection (e.g., type A has a fitness of 1 and type B has a fitness of 0.75, no matter how they are grouped) as an example of group selection when the types are clustered into separate groups. The empirically empty preference of one formulation over another should never be confused with the empirically meaningful issues associated with the original problem.

**8) Type one vs. type two group selection.** Some traits, such as altruism, can be measured in individuals. Other traits, such as group size, can only be measured in groups. Samir Okasha refers to these as type 1 and type 2 traits, respectively. Whatever the merits of this distinction, it is important to realize that virtually all of the examples of group selection discussed throughout its history have been of the type 1 variety--traits that can be easily measured in individuals but require group selection to evolve because they are locally disadvantageous. A trait need not be a "group-level" trait (type 2) to evolve by group selection. Conversely, a "group-level" trait such as group size can evolve by pure within-group selection, as we saw in [T&R XVIII](#) for the endangered bird species discussed by Hanna Kokko.

**9) Everything that evolves as a form of individual selfishness.** Whenever altruism evolves by group selection, the average altruist is more fit than the average non-altruist in the total population, which can be conceptualized as a form of individual selfishness. The same gambit allows individual-level adaptations to be conceptualized as a form of gene selfishness. The problem with these expanded definitions of selfishness is that they don't deny what they seem to deny. Gene selfishness is no argument against group selection and neither is the fitness of individuals averaged across groups. Theoretical biologist Alan Grafen is going to great lengths to build a formalism in which natural selection operating

at all levels of the biological hierarchy (in multilevel selection terms) can be represented as a form of fitness maximization at the individual level. Strictly speaking, this enterprise is doomed to failure because natural selection operating below the level of the individual, resulting in such things as cancer and meiotic drive, can never be represented as for the good of the individual. Thus, Grafen must assume that these examples are trivial to proceed with his agenda. Even then, however, what is the point of trying to represent natural selection as a maximizing process at a single level of the biological hierarchy, much less the individual level?

**10) Group selection vs. group adaptation.** Generations of students have been told to avoid "for the good of the group" thinking because it requires group selection. Another way to say "for the good of the group" is "group-level adaptation". Nevertheless, according to a recent article by Andy Gardner and Alan Grafen, a trait does not count as a group-level adaptation just because it evolves by group selection; it must evolve almost exclusively by group selection. It's amazing how fast this argument has been taken up as the newest defense of individualism in evolutionary thought. Critics and proponents of group selection alike would have been mystified by it in the 1960's. For them, the question was whether group selection *ever* happens. The idea of restricting the concept of group-level adaptation to cases where group selection *only* happens would never occur to them. It shouldn't be necessary, but Elliott Sober and I are preparing to spell this out in yet another article as the academic arms race continues.

It's worth asking why so many derived issues have arisen after the original problem was settled. In the spirit of discussing cultural influences for current science rather than waiting 50 or 100 years, (see [T&R VI](#)), I submit that when the rejection of group selection failed, those drawn to individualism felt the need to produce new arguments on its behalf. All of the derived issues buttress the concept of the individual as a privileged level of the biological hierarchy. Individualism is the primary issue at stake and when one argument fails, others are created to take its place. Once we let go of individualism, these arguments seem pointless and contrived.

Adaptations can evolve at all levels of the biological hierarchy, from genes to ecosystems, but only when certain conditions are met. Truth and reconciliation for group selection means regarding this statement in a positive sense and exploring its rich implications.

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1

From "Rethinking the Theoretical Foundation of Sociobiology"

“Selfishness beats altruism within groups. Altruistic groups beat selfish groups. Everything else is commentary.”

Except when the altruistic groups are beating the selfish groups within the context of an even larger group.

Posted by: piker | [November 17, 2009 5:47 PM](#)

2

Thanks for this series. I now feel much more confident that I can deal fairly with group-selection issues as I encounter them in my science journalism.

Posted by: [Don Monroe](#) | [November 17, 2009 7:36 PM](#)

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