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## E pluribus unum?

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**Abstract:** Wilson and Sober correctly ask whether groups can be like individuals in the harmony and cooperation of their parts, but in their answer, they ignore the importance of the difference between genetically related and unrelated components.

Am I an organism, or a community, or both? I am both – and more - but there is a tremendous difference between the cells that are officially part of my body, and the cells, many of them just as important to my survival, that are not. The cells that compose multicellular me all share an ancestry; they are a single lineage, the "daughter cells" and "granddaughter cells" of the egg and sperm that united to form my zygote. They are host cells; the other cells are visitors, some welcome, some not. The visitors are outsiders because they have descended from different lineages. What difference does this make?

This is extremely easy to lose sight of, especially in contexts in which we treat all these "parties" as intentional systems - as we should, but with extreme caution. Unless we are careful, we are apt to miss the fact that there are crucial moments in the careers of these various agents and semiagents and hemi-semi-demi agents when opportunities to "decide" arise, and then pass. The cells that compose my bulk have a shared fate, as Wilson & Sober (W & S) rightly stress, but some in a stronger sense than others. The DNA in my finger cells and blood cells is in a genetic cul-de-sac, part of the somatic line, not the germ line. Barring revolutions in cloning techniques (and ignoring the strictly limited, short-lived prospects they have for giving way to re-placement cells they help create), these cells are doomed to die "childless," and because this was determined some time ago, there is no longer any pressure, any normal opportunity, no "choice points," at which their intentional trajectories - or the trajectories of their limited progeny - might be adjusted. They are, you might say, ballistic intentional systems, whose highest goals and purposes have been fixed once and for all, with no chance of reconsideration or guidance. They are totally committed slaves to the summum bonum of the body of which they form a part. They may be exploited or tricked by visitors, but under normal circumstances they cannot rebel on their own. Like the

"Stepford Wives," they have a single summum bonum designed right into them, and it is not "look out for number one." On the contrary, they are team players by their very nature.

How, individually, they further this summum bonum is also designed right into them (well or ill, but well for the most part, relative to recent circumstances), and in this regard they differ fundamentally from the other cells that are "in the same boat," my symbiont visitors. The benign mutualists, the neutral commensals, and the deleterious parasites that share the vehicle they all together compose - namely, me - each have their own summum bonum designed into them to further their own respective lineages. Fortunately, there are conditions under which an entente cordiale can be maintained, for they are all in the same boat, and the conditions under which they can do better by not cooperating are limited. But they do have the "choice." It is an issue for them in a way it is not for the host cells.

Why? What enables - or requires - the host cells to be so committed, while giving the visitor cells a free reign to rebel when the opportunity arises? Neither sort of cell is a thinking, perceiving, rational agent, of course. And neither sort is significantly more cognitive than the other. That is not where the fulcrum of evolutionary game theory is located. Redwood trees are not notably clever either, but they are in conditions of competition that force them to defect, creating what is, from their point of view (!), a tragedy of the commons. The mutual cooperative agreement whereby they would all forego growing tall trunks in the vain attempt to gain more than their fair share of sunlight is evolutionarily unenforceable, to use David Haig's (1993, p. 518) good phrase.

The condition that creates a choice is the mindless "voting" of differential reproduction. It is the opportunity for differential reproduction that lets the lineages of our visitors "change their minds" or "reconsider" the choices they have made, by "exploring" alternative policies. My host cells, however, have been designed once and for all by a single vote at the time my zygote was formed. If, thanks to mutation, dominating or selfish strategies occur to them, they will not flourish (relative to their contemporaries), because there is scant opportunity for differential reproduction. (Cancer can be seen as a selfish - and vehicle-destructive - rebellion made possible by a revision that does permit differential reproduction.) As Skyrms has pointed out (1994; in press; forthcoming) the precondition for normal cooperation in the strongly shared fate of somatic-line cells is analogous to the cooperation Rawls (1971) tried to engineer behind the "veil of ignorance" in his Theory of justice. W & S see the parallel between what they call "the genetic rules of meiosis" and social organization, but they draw the wrong conclusion from it, for human social groups are not, in general, composed of near-clones, the way organisms' bodies are (and the way the communities of social insects and naked mole rats are).

Unlike the cells that compose us, we are not on ballistic trajectories; we are guided missiles, capable of altering course at any point, abandoning goals, switching allegiances, forming cabals and then betraying them, and so forth. For us, it is always decision time, and no consideration is alien to us, or a foregone conclusion. For this reason, we are constantly faced with social opportunities and dilemmas of the sort for which game theory provides the playing field and the rules of engagement. Our genes, on the other hand, face these competitive opportunities only under special conditions, in which what Skyrms (1992) calls the "Darwinian Veil of Ignorance" is briefly lifted, such as in cases of "meiotic drive" or "genomic imprinting" (Haig 1992; Haig & Grafen 1991). The "time to be selfish," for genes, is strictly limited, and once the die - or the ballot - is cast, those genes are just along for the ride until the next election.

Skyrms (in press) shows that when the individual elements of a group are closely related (clones or near clones) or are otherwise able to engage in mutual recognition and assortative "mating," the simple game-theoretic model in which defection always dominates does not correctly model the circumstances. This supports W & S's insistence - long acknowledged but still ill-understood - that there are indeed conditions under which groups can have the "harmony and coordination" required to behave, quite stably, as "organisms" or "individuals" - long enough to permit group-selection effects to occur, for instance. Far from undermining the gene's-eye perspective of Dawkins and Williams, however, this possibility depends on it; it is only from that perspective that the enabling conditions for "group" solidarity can be explained. Or, to put it more provocatively, the conditions under which "nonselfish" coordinations can occur must all be described in terms of how they can be derived, directly or indirectly, from the interactions of "selfish" parts. This does not deny the existence of true group spirit or true selflessness; it just shows that the paths in design space by which it can emerge are narrow and rare. (All the more reason to value it when it does appear, you might say, but it is also worth remembering that the most ubiquitous type of selflessness is the unquestioning bondage of somatic-line cells and organs, exhibiting a xenophobic group loyalty that is hardly an ideal for human emulation.)