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Response by Richard D. Alexander to the on-line comments of the economist Herbert Gintis regarding *The Biology of Moral Systems* (14 April 2007):

1. Gintis's quote from p. 3 of BMS. Contrary to Gintis, my use of self interests is in not the same as that of economists, and that is why my model of human behavior is not, as he claims, "fatally flawed." Economists have historically made the serious mistake of forgetting that "self" is both phenotype and genotype (I explained the significance of this difference at length in 1979 in *Darwinism and Human Affairs*). Whether we like it or not, the phenotype is a tool constructed by the genes during evolution; its only reason for existence is as a mechanism for transmitting genes to the next generation and assisting them in continuing the reproductive process. The evolved function of the individual is not self-interest in the sense of saving the phenotype at all costs but in the sense of getting the genes associated with that phenotype into the next generation in such fashion as to create a stream of descendant individuals. This is the only evolved function of the individual, and it is the only way species continue to exist. Life would cease without it. Individuals have evolved to have short, programmed lives. Any individual that tried its best to live forever would eventually die without issue, even if only by accident, and the genes that contributed to its doing this would be lost forever. Self interest includes everything that involves reproduction: creating and assisting offspring, helping other relatives, and investing socially in other individuals likely to reciprocate, with interest, assistance given to them. Evolution, incidentally, is always, as Darwin noted in one of his marvelous unchallenged challenges, a matter of numerous, slight, successive changes, and that is an important criterion of traits and tendencies said to be evolved – a way of judging whether traits are evolved. Because directions of mutation are random with respect to whether they help the organism, there is no reason to find numerous, successive, slight mutations that together form a functional complex trait except as a result of differential reproduction or natural selection.
2. Gintis's quote from p. 34, BMS. How people perceive their own interests does not have to be fully conscious, or accurate. People may consciously regard an action of their own to be "for the benefit of the group" without this being so. If such a person feels good about his or her action, the act is almost certainly a matter of perceived self-interest, because acts contrary to self-interest cannot evolve (another Darwin challenge), and pleasure cannot evolve as a proximate mechanism of acts contrary to an individual's interests.
3. Gintis's comments about smoking continuing even though it is against self-interests. Smoking is an evolutionary novelty, as with many current behavior-altering drugs and a variety of other events in modern life. The overall (conscious and non-conscious combined) perception of an individual that is using evolutionarily novel deleterious drugs, or is over-eating (e.g., historically rare items such as fat, sugar, and salt that humans could not acquire in excess during most of evolution), can therefore cause that individual to continue the deleterious behavior, despite whatever the individual might be thinking about the whole situation. Even Gintis notices that the smoker may be thoughtful about his own self-interests – perhaps with considerable distress -- while continuing the addictive habit of smoking. It takes a while for evolution to correct such situations as harmful addictions, but it does. People who have been exposed for an evolutionarily long time to deleterious drugs, alcohol, or particular diseases do not show the same strong tendencies to suffer from them; the ones who continued to suffer from them are dead, and they took with them the genes that allowed

or caused them to be vulnerable. No evolutionary biologist would talk about individual self-interests in anything but an evolutionary sense.

4. Gintis's comment on an individual's misperception that his or her assistance is to the poor when it is not, and the notion that such systematic misperception, when prosocial, "might be central to human social cooperation." Gintis here comes close to agreeing with my argument that humans are evolved to serve their own interests. He then tries to save his view that this is not true by claiming that human sociality is based on mistakes and accidents. In novel social situations accidents and mistakes can surely occur (see above). But that does not negate anything I have said, because I have always carefully used the adjective "evolved" when I talk about complicated behaviors. Gintis's view will have to be demonstrated to be central to human social cooperation before we can take it seriously or understand it fully. Gintis and others need to consider more seriously the nature of self-interests, and how human sociality would be expected to work if their view of self-interests is taken seriously, before claiming that modern human sociality is merely a set of errors.
5. Gintis's comment on p. 77 of BMS. Gintis's claim that my statement that moral systems are systems of indirect reciprocity is wrong, is itself wrong, once again for the reason that he has not been looking at self-interest and its alternatives in a way consistent with the principles of evolution that are responsible for humanity and its traits. With regard to his statement about moral systems exhorting forms of altruism that "do not reduce to self-interest," he does not seem to understand that the reason for moral systems being developed is that individual people are indeed seeking to serve their own interests, and that is what causes conflicts of interest and the imposition of restraints via moral systems. People do not stop seeking to serve their own interests when moral restraints are put in place. The existence of moral rules simply changes what they must do to serve their own interests. And accepting the restraints is one of the changes the successful ones make. Moral systems generate and are accepted because humans gain by cooperating in order to compete at a higher level of organization – the only reason anyone knows for the kind of cooperation that humans indulge in. But that does not mean that every individual gains solely from following all existing moral rules. Moral systems designed to restrain self-interests work because they increase cooperation in situations that cause cooperation to thwart serious enemies such as other groups of humans. In such situations self-interests and the group's interests tend to converge, so that serving self-interests under the moral system tends to work at both levels. Patriotism (historically, primarily loyalty to one's kin circle), after all, may be the social emotion that can reach the highest levels of intensity – because it serves the individual's interests. If Gintis plugs in the "real" (evolutionary – not economic) meaning of self-interest he can identify return benefits that will help him to understand how everyday sociality functions both when hostile forces threaten and when they recede.
6. Gintis says that even criminals and psychopaths exhibit non-self-interested behavior. Using people with serious personality – or physiological -- flaws to defend one's views of everyday society seems a curious ploy. Exactly what goes on in the mind of a psychopath who kills his enemies and then himself is surely difficult to work out, and at best a doubtful way to defend the general argument Gintis has been setting out. Mental aberrations often may be what geneticists call pleiotropic effects – for example, occasional genic combinations that don't work very well, even though all their parts work quite well in other combinations. And there is still the problem that Gintis does not seem to understand that some apparent non-self-

- interested behavior is actually selfish. Criminals and psychopaths are not generally regarded as either great altruists or as highly successful at reproducing their specific tendencies.
7. As for so-called “strong” reciprocity, I remain unconvinced by the experiments Gintis cites. The not-so-conscious side of potentially reciprocal interactions, and the very complex role of our history of elegantly differential nepotism in a society now also shot through with complicated reciprocity, have in no way been satisfactorily analyzed. Moreover, as already noted, evolution cannot produce pleasure reactions to behaviors that are of net cost to the actor’s reproductive success (therefore the actor’s self-interests). It would be interesting if Gintis and others had asked how the subjects in their experiments feel about being “strong reciprocators.” Are they glad they did it, or are they complaining? Can any such complaining be interpreted as mainly broadcasting to others their supposed altruism in order to make it self-interested? Did subjects do what they do in experiments sometimes because it is such a fun thing to tell others about (and gain from) after the experiments? Because of such possibilities, there may actually be no two-party games among humans. Anyone can do anything in a brief and inexpensive experiment, and then use the experience to brag about it profitably to anyone (I gave an example in my 2006 paper – see below). There are many things of this sort that remain to be understood, or even merely brought up, by the current wave of people like Gintis doing such experiments and drawing from them sweeping conclusions that are sometimes doubtful in light of our knowledge of evolution. (1990)..
 8. I share, presumably with all people, the search for ways to maximize good will, harmony, and cooperativeness in all of human society, and to minimize pain, misery, and suffering. This is my reason for writing books like *Darwinism and Human Affairs* and *The Biology of Moral Systems*. I also believe, however, that to make significant strides in this direction will best be aided by first learning as much as possible about precisely how human societies operate. Such investigations are most likely to be successful and useful if they are honest and thorough, specifically if they do not dismiss valid arguments and findings for the reason that they do not seem to portray humans as we would like them eventually to exist. Moreover, I seriously believe that people immersed all their lives in modern, mobile urban societies – and especially, perhaps, academia(!) -- are apt to have difficulty interpreting behaviors evolved in entirely different situations that more closely resemble the tightly coordinated kin groups of non-technological societies, rural agricultural societies, and closely knit religious and other minority rural societies such as the Amish.
 9. My general conclusion is that something other than what Herbert Gintis has said so far will have to be brought forth to cause me to waver on any of the statements in *The Biology of Moral Systems* that he has criticized.
 10. Three more recent papers in which these various topics are discussed can be downloaded as follows: <http://insects.ummz.lsa.umich.edu/pdfs/> (1) How Did Humans Evolve? *U-M Museum of Zoology Special Publication* 1:iii + 38 pp. (1990); (2) Evolutionary Selection and the Nature of Humanity. (2005). In: V. Hosle and C. Illies (eds). *Darwinism and Philosophy*. Univ. Notre Dame Press, pp. 424-495. To download these two papers, add: Alexander 1990.pdf, and (3) The Challenge of Human Social Behavior (2006). An invited review of Hammerstein, Peter (ed). 2003. *Genetic and Cultural Evolution of Cooperation*. MIT Press, Cambridge, Mass. *Evolutionary Psychology* 4(2):1-28. Download at <http://human-nature.com/ep/reviews/epo4123.html>