

One way to infer that a social transaction represents social reciprocity rather than some other form of social cooperation is to consider the extent to which opportunities for cheating exist for both partners. Cheating is not likely in ordinary interspecific mutualism (see handout 26). Connor (1986) regards it as possible for one member of an interacting pair to cheat in pseudo-reciprocity. Those who analyze social reciprocity in terms of Prisoner's Dilemma and other aspects of game theory use the verb "defect."

What is cheating? Defection?

For **cheating**, Webster's Collegiate Dictionary (1947 edition) says: One who or that which deceives or defrauds; intentional obtaining of property from another by an intentional active distortion of the truth. **Defraud** is defined as to deprive of some right, interest, or property by deceit. For **deceive**, the dictionary says: to mislead, delude, cheat, beguile, dupe, fool, hoax, trick, gull. Synonyms given for cheat include: cozen [to deceive through pretext of relationship!], hoax, bamboozle, overreach, mislead, victimize, hoodwink, delude. It also says that: **Cheat** usually implies a certain degree of cunning or trickery . . . **Defraud** implies a taking or withholding by fraud [**fraud**: an intentional perversion of truth to induce another to part with some valuable thing belonging to him, or to surrender a legal right]. To **swindle** is to cheat or defraud grossly and deliberately, often by taking advantage of a confidence inspired by plausible misrepresentations. To **dupe** is to delude or cheat by imposing on credulity.

For **defection**, the same dictionary says: to **desert**.

Obviously, most of these definitions are couched in terms that refer to human social interactions. They refer to mental activities involving looking ahead, planning, knowing the expectations of others, modifying those expectations through manipulation of reality, and then reaping some kind of reward at the expense of the other party. The degree of heinousness relates to the degree of deliberateness in the distortion of the truth (and probably the severity of the fraud in terms of its expense to the victim and the helplessness of the victim). Deceit by humans implies deliberate deception to serve one's own interests explicitly at the expense of another.

I don't think it is simply incidental, either that humans have generated so many synonyms of "cheat" (as it is not incidental that Eskimos have a large number of words for snow) or that cheating is couched in terms of mental activities that are either restricted to humans or more prominent among humans than elsewhere. Social reciprocity is definitely more prominent in humans than in any other species, and it seems a reasonable hypothesis that deception and social reciprocity flowered together as humans evolved.

But we need to try to define "cheating," as used in the original statement above, in a way that enables us to consider its presence or importance in nonhuman organisms or in social interactions other than reciprocity. Of course there is the possibility that there is no reasonable way to use the term cheating in nonhumans, at least in the way we consider it for humans, simply because social reciprocity is not prevalent in most species and may be absent except in a few close relatives of humans such as chimpanzees.

Consider the term "defection" (or desertion). Like the word "cheating" it implies that there is some kind of "usual" or "normal" course of events that has been disrupted -- some "expectation" on the part of participants in a social interaction that is thwarted. It doesn't necessarily imply any of the human mental attributes required for deliberate deception. It merely implies that one of the parties in a social interaction, which "normally" would continue to some later kind of usual ending, resigns from the interaction -- terminates it -- defects. This may cause a hardship or expense to the other involved party, in the same way that cheating does. But cheating implies that the cheater manipulates the situation, increasing its own reward and imposing a greater cost on the cheated (or deserted) party.

So what we have to identify is situations in which (1) there are frequently opportunities for profitable

defection and (2) these opportunities for defection are such, in some cases or some species, as to enable the defector to carry out actions that increase its own profit at the expense of the other party. That's how we could get from a nonhuman species that did not cheat to a human one that did. And it is presumably how we can identify precursors or parallels of cheating in social reciprocity, which occur in nonhuman species (and sometimes in humans).

Defection can be profitable when (1) information becomes available to one member of an ongoing social interaction that the interaction is going to be unprofitable, such as: the other partner cannot fulfill its part of the interaction (as, in a mating-parenthood cooperative enterprise, it turns out to be sterile) or (2) a better opportunity arises, such as: a better partner becomes available at little or no cost. These kinds of defections (the current interaction will lead nowhere; a better interaction is available) do not require cheating in the sense of deception or deliberate swindling, but they do involve disruptions of normal or usual sequences of interaction, and they profit the deserting individual and cost the deserted individual. They are not necessarily (always) associated with social reciprocity, but they could be the kinds of actions that preceded or accompanied the evolution of social reciprocity. Defection and cheating, as discussed here, are somewhat different from the kind of interspecific deception that occurs in mimicry, or even the intraspecific deception that occurs when, say, some male fish mimic females and thereby are able to approach females at mating time and secure sneak matings; these deceptions differ in that there is no investment by the victimized party except the same general kind of evolved, more or less irreversible, developmental, morphological-physiological-behavioral investments that occur in interspecific mutualism (presumably they are irreversible because there is little opportunity to gain by defecting, therefore to gain by reversals of investments). One might also suppose that ease of shifting quickly to new social interactions, which exists in human social reciprocity partly because social interactions there involve (at least now) what might be thought of as ultimate plasticity, is also a facilitator of the evolution of social reciprocity. Specialization, division of labor, and other aspects of human sociality that have probably come about because of the prevalence of social reciprocity, also facilitate shifting among social partners or interactants.

Does social reciprocity require cheating in any other sense than defection? Perhaps not. But it seems to me that whenever opportunities become prevalent for improving long-term social interactions of the sort that involve extensive investment by both parties and repeated acts of investment, abilities and tendencies to engage in the antecedents of deliberate deception and defrauding, and the evolution of capabilities to swindle by deliberate, conscious means (what someone called "malice aforethought") -- will evolve (and, therefore, so will the machinery of such defrauding, and the machinery to prevent it). Long-term social interactions that involve extensive and repeated investment are precisely the kinds of interactions that provide opportunities for defection; and the presence of multiple potential partners for such interactions raises the opportunities for profitable defection. This is the general social situation and the general form of social interaction that I see as having evolved in humans. It is also what I would expect to see in at least rudimentary forms wherever social reciprocity is suspected to occur, and especially if it is expected to be prevalent. Obviously, one also expects the evolution of safeguards against cheating (indeed, unless safeguards against cheating can evolve, social reciprocity will not evolve because those who enter into such interactions will too often lose; perhaps the presence of indirect reciprocity in humans, which allows safeguards to come from other than simply the partner in a particular reciprocal interaction, are more important in understanding the prevalence of social reciprocity in the human species than we might have thought). And the race toward intellectual complexity is on. The extent to which such a race will dominate the evolution of mental capabilities will depend on the importance of such social interactions. That in turn will depend partly on the extent to which other hostile forces of nature are able to damp the overall importance of such social interactions in the lives of the members of the species (i.e., on the "ecological dominance" of the species).

You might wish to read in the epilogue of my 1987 book, *The Biology of Moral Systems*, the passages in which I try to identify immoral behavior. I expand there on the idea that: "It is possible to consider an act immoral to the extent that it represents interference with the legitimate or rational expectations of another person, particularly in the service of a perpetrator's interests, and most particularly if the perpetrator carries out the interference with conscious intent, with knowledge of the legitimacy or rationality of the victim's expectations, and by employing deliberate deception." (p. 259).

Perhaps it is appropriate that our next topic, following the life cycle and senescence, is sexuality and sexual selection, including the extent to which prospective mates can be held to honest advertising.