Chapter 1

About the Origin of Cooperation and Its Relation with Altruism and Egoism

1. Cooperation and Altruism

Cooperation is the basis not only of all social organizations, but of cellular aggregations too. It has been noted that even among plants there are forms of cooperation, at least by means of exchange of some information for the realization of strategies against herbivores.

In humans, the subject of cooperation has often been discussed relating it to the nature and the origin of altruism.

Although, as a first approximation, altruism can be simply defined as an interest in benefitting others, we may highlight that many scholars have devoted their energy, besides to classify the different kinds of altruism, also to define it.

About its classification, Khalil (2003), among the others, writes that we can distinguish three different theoretical approaches about the concept and nature of altruism: the *egoistic*, the *egocentric* and the *alter-centric* approach.

The scholars who follow the *egoistic approach*[1] underline that altruistic behavior is determined by the expectation of future gains and that it can be conve-

[1]See Axelrod, 1984; Bergstrom and Stark, 1993; Taylor, 1987.

nient in a context of repetitive games, above all if games are repeated endlessly and the expected gain for altruistic behavior is above a critical level. In other words altruistic behavior is only a form of egoism, determined by a *do ut des* and therefore only a particular kind of cooperation in which the operations of agents are not synchronous. This approach can be related, about the origin of altruism, to the thesis of *reciprocal altruism* (see below).

For the *egocentric approach* (Hochman and Rodgers, 1969; Becker, 1976; Dawkins, 1976) altruistic behavior is caused by the fact that in a relation the agent considers (in his decisional process) also the welfare of other agents. In economic terms, in his utility function there is not only his benefit, but others' one too. Becker (1976) imagines altruist as a subject who includes in his utility function the consume of the counterpart. Altman (2006) uses indifference curves to represent the ethical dimension in the decision-making process[2].

The presence in the utility function of others' benefit, however, is due to empathy, *i.e.* a capacity to identify oneself with other subjects. Empathy is also defined as a sort of "emotional proximity" and, in the opinion of the scholars who support the *egocentric approach*, it depends on parental links and/or friendship.

However, we can see that empathy can be felt towards individuals of different species too, and sometimes even towards plants. Empathy is the basis of social life, because it generates behaviors as imitation and cooperation and it is related to pro-social emotions such as pride, shame, remorse, sense of guilt[3]. Even negative feelings, such as envy, can play a role in social life, as we will see below.

The presence of pro-social behaviors and, above all, their genetic character, introduces us to the *alter-centric* approach, which is based on the idea that individuals tend to show pro-social behaviors (including those of pure altruism) because of genetic factors (a "moral gene"). According to this approach a moral imperative, which is determined by a natural tendency to adopt codes of beha-

[2]In this way, Altman inserts the moral dimension in the neoclassical theory, which in its conventional form predicts that moral firms cannot survive in a competitive market. Altman (2005), on the other hand, stresses that "the extent of altruistic, ethical, and moral behavior simply depends on the preferences of individuals, given the economic constraints".

[3]Bowles and Gintis (2002) stress the role of these emotions in generating phenomena of empathy.

vior based on solidarity, rules out rational calculation. Thus the decision-making process could be determined by the application of codes, by the tendency to imitate and by other factors in a way not as rational as it was postulated by the economists of the mainstream.

2. About the Origin of Cooperation

As we mentioned above, the origin of cooperation can be linked to its nature. According to the *egoistic* approach, selection can favor altruism as long as there is reciprocity. This approach can be related to the thesis of *reciprocal altruism*. The scholars who support the theory of *reciprocal altruism*, differently from *group selection*, another theory that we will comment below, focus on individual rather than group (Trivers, 1971; Maynard Smith, 1974). From this aspect their opinion is similar to that of evolutionary biologists who support *kin selection*, which states that a subject's altruistic behavior is directed mainly towards his relatives.

In fact several evolutionists think that, since the unit of reproduction in humankind is not the group but the individual, selection might favor those characteristics that maximize individual utility. The central concept of this thesis is *inclusive fitness* (Hamilton, 1964, 1971), according to which the genetic success of the individual is measured not only by his own survival and reproduction, but also by that of the other subjects with the same genes. Eberhard (1975) has mathematically shown that small degrees of consanguinity can also constitute the basis of *kin selection*. Moreover it is highlighted that altruism can prevail above all if the beneficiaries obtain great advantages with low costs for the benefactors.

However, the supporters of *reciprocal altruism* stress that reciprocity can favor altruism even if it is directed to individuals without consanguinity. Granted, however, as we have seen above, that this is only a kind of cooperation and not a real form of altruism, it is important to note that to the aim of its success it seems that the presence of mechanisms which penalize ungrateful individuals[4] is indispensable. Cosmides and Tooby (1992, p. 180) report the proof that hu-

[4]The Tit-for-Tat strategy: see Axelrod and Hamilton, 1981.

mans have developed the capacity to identify selfish behaviors and react to them. Important contributions on this subject are the Tit-for-Tat strategy (Axelrod & Hamilton, 1981), the Ultimatum Game, introduced by Güth *et al*. (1982) (see also Güth, 1995, and Witt & Yaary, 1992), and the Gift Exchange Game (Fehr *et al*., 1993). In this context altruism might be the consequence of a rational choice.

However, according to the concept of "bounded rationality" elaborated by Simon (1957, 1983, 1992, 1993), there is a gap between the actual behavior and the predictions of rational actor models. Individuals are not actually able to maximize their objective function if the costs of collection of information and processing are too great, thus they tend to act on advice and to respect norms[5].

Also by means of a game, the Dictator Game, in which there is a responder who can only accept or refuse the offer made by a proposer, with no consequences for the latter, it has been shown that altruism is not absent (Forsythe *et al*., 1994) and this is in contrast with the concept of altruism as a rational choice, instead drawing attention to some genetic factors.

Moreover, it cannot be denied that cultural factors, and more generally cognitive factors, are linked to a genetic substratum. Bowles and Gintis (2003 [2002]), for instance, state that culture and genes are strongly linked to each other in the human species. Gintis (2000) especially asserts that humans show manifestations of *strong reciprocity* which is a behavior that probably has a genetic component, because it cannot be justified only by cultural or rational reasons. He has also modeled (Gintis, 2003) Simon's explanation of altruism (Simon, 1990), "showing that altruistic norms can "hitchhike" on the general tendency of internal norms to be personally fitness-enhancing".

As we have seen above, many scholars affirm that altruism has emerged ad survived because of the dynamics of *group selection*.

The thesis of *group selection* (Winne-Edwards, 1962) asserts that altruism involves cooperation and the internal cohesion of a group, thus favoring its survival (Sober, 1991). This thesis, as we have seen above, has been challenged by

[5]For the limits of our reasoning in conditions of uncertainty, see Tversky and Kahneman (1974), Cosmides and Tooby (1996), Gigerenzer and Hoffrage (1995).