Evidence of altruism, defined as behavior that enhances the biological fitness of another at the expense of the biological fitness of a helper, is paradoxical in the theory of evolution because it seems inconsistent with the principle of natural selection. In the "struggle for existence," altruists (and their altruistic genes) should, by definition, fare poorly in competition with individuals possessing genes that favor more selfish behavior, and thus they should become extinct. In the past, theorists have tended to resolve this paradox either by assuming that all animals are fundamentally selfish by nature, but that some species, such as humans, may be induced to behave altruistically by nurture or culture, or by identifying mechanisms equipped to select altruistic behaviors at levels of selection different from that assumed by Darwin.

The authors of the two chapters in this section, Ian Vine and Ronald Cohen, offer resolutions to the paradox of altruism that reject both exclusively biologically based and exclusively culturally based models. Indeed, the writers of both chapters explicitly reject "either-or" nature versus nurture and biology versus culture dichotomies and the "excesses" of "first-generation" sociobiologists. Cohen partially recants the position he advanced in 1978 advocating the cultural overriding of biologically based hedonism. Both writers advocate models that attribute human altruism to an interaction between biologically based dispositions to acquire characteristics that prepare individuals to learn to behave altruistically and environmental or cultural inputs. Vine traces the origin of altruism ontogenetically to interactions between mothers
and children during the first year of life, and Cohen attributes it to more broadly based aspects of culture.

In chapter 4, Vine supplies a succinct and lucid review of sociobiological solutions to the paradox of altruism. Rejecting Darwin’s appeal to group selection, he partially accepts the more modern resolutions based on kin selection, reciprocity, and manipulation. Vine concludes that such mechanisms go a considerable distance in the explanation of altruism, but they fall short of explaining the type of self-sacrificial behavior toward strangers and members of outgroups documented by theorists such as Oliner and Oliner in their accounts of the rescue of Jews during World War II. Reviewing three contemporary models of evolution, Vine argues that the only model equipped to explain altruism toward out-group members is one attentive to the functional interaction between biological and social-environmental factors.

Vine allows that individuals may maximize their inclusive fitness by behaving altruistically toward kith and kin, but suggests that unconscious brain structures bias individuals toward egocentric and ethnocentric behavior. However, he suggests, the development in humans of a subjective self-system that extends beyond the bodily self to include identities with others permits mental causation of altruistic behavior toward a broad range of others. He explains how consciousness and self-awareness may have evolved in humans, and suggests that these acquisitions have helped free us from biological constraints on altruism through the inculcation of sympathy.

The difficult task Vine sets for himself is to explain how infants acquire an inclusive identity, which entails integration between self and other while at the same time achieving sufficient differentiation to insure that the prosocial behaviors they direct toward others are not directed toward themselves-in-others, depleting them of altruism. In large part, this entails distinguishing between empathy (responding to others as though they were the self) and sympathy (responding to others on their own terms—as Jarymowicicz puts it in chapter 8, “exocentrically”). Vine traces the origin of sympathy, and therefore the origin of altruism, to the affectively charged reciprocal exchanges characteristic of interactions between infants and their mothers during the first year. In contrast to theorists who attribute prosocial responses in infants to empathy based on a lack of differentiation, and thus confusion, between self and other, Vine suggests that infants acquire both a “self-with-
other" schema—a "we" identity—and a sense of self-other differentiation during early reciprocal exchanges with their mothers. Infants develop a differentiated sense of themselves as agents when they respond to the give and take of exchanges with their mothers, but this sense of self is a connected one—tied to the reciprocal reaction of the mother. Thus, argues Vine, infants may feel sympathetic to the objects of their reciprocity as distinct from themselves, while at the same time incorporating these objects into their identities, as, in a sense, the other half of themselves.

Ronald Cohen opens chapter 5 by partially disavowing a position he advanced in his earlier work attributing human altruism to cultural constraints on biological hedonism, and goes on to suggest that a more tenable position is that the "dynamic duo" of biological and cultural evolution—working with one another, against one another, and independently—have mediated the evolution of altruism in the human species. Appealing to Boyd and Richerson's "dual inheritance" model of biological and cultural evolution, Cohen points out that both processes are governed by the same basic principles: descent with modification and selective retention of variations. While biological evolution has worked slowly, selecting gene frequencies over generations, cultural evolution may operate at a much more rapid pace.

The dynamics of biological evolution are relatively well understood. Cohen singles out four biologically selected traits as especially important in the interaction with culture in the determination of human altruism: the capacity to restrain dominance strivings, the proclivity to learn from authority, the acquisition of a sense of morality, defined broadly as the tendency to label some phenomena right and others wrong, and the capacity for abstraction mediating critical assessment. Also mentioned are organic brain mechanisms, guilt, and echo responses to distress signaling.

The dynamics of cultural selection are less well understood. Cohen suggests that cultural variations evolve primarily through the process of group selection. Culturally based variations occur through recruitment of different individuals into the same roles, migration, and the diffusion of traits from one region to another. Some selective mechanisms, such as conformity, mediate the spread of popular variations. Other selective mechanisms, such as gossip, exert a conservative influence on the status quo. Still other mechanisms, such as reactions to injustice and the imagined effects of social change, may exert a more directional influence. Cohen
suggests there may be an optimal range of accepted variation, with resistance to radical change.

In the second half of his chapter, Cohen advances the argument that a civil society is evolving through the dual inheritance process, in which altruism is being incorporated into cultural beliefs, values, and regulations. The evolution of such a society is dependent on the promulgation, selection, and retention of cultural ideas supporting it. Defining features of a civil society are (a) the freedom to assess rules and regulations critically and to make changes on the basis of such assessments, (b) an expansion of the boundaries of the moral universe to include those hitherto considered out-group members, and (c) an increase in the value of altruism and tendencies toward empathy and sympathy.

What evidence is there for the evolution of civil societies? Cohen mentions three features: the expanding recognition that private fates are affected by public policies; the rejection of conflict and acceptance of more peaceful means of resolving differences on an international level; and nuclearization of family life, which, Cohen argues, encourages the socialization of moral and altruistic emotions. Finally, with many other writers in this volume, Cohen identifies inclusiveness of identity as a key factor in the expansion of altruism. Primary among the factors that enable civil society is the expansion of the moral universe to include all people. Cohen believes that at least some of the individuals who rescued Jews during World War II possessed inclusive identities and high moral principles. He suggests that the Holocaust constituted a cultural event that had a profound impact on the evolution of altruism, making clear on an international level the tremendous costs of constraining the moral universe. The time has come, suggests Cohen, both for the belief that all people have equal moral rights and for the willingness to act on this belief, and he believes these cultural variants are being selected on an increasingly wide scale. Cohen is optimistic. He has faith in the fecundity of cultural variations favoring altruism. When he looks at the international community, he sees evidence that civil societies are beginning to evolve. Others, more steeped in the constraints of evolved dispositions perhaps, will appraise the world scene and come to a less hopeful conclusion.