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CHAPTER SEVENTEEN

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**GENETIC SIMILARITY THEORY,  
ETHNOCENTRISM, AND GROUP  
SELECTION**

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**Introduction**

Genetic similarity theory, an extension of the kin-selection theory of altruism, postulates that people detect genetic similarity in others ("nonkin" as well as "kin") in order to provide mutually supportive environments, such as marriage, friendship, and social groups. In line with prediction, studies using blood antigens and heritabilities reveal that sexually interacting couples and same-sex friendships are based partly on genetic similarity (Rushton 1989a; 1995). As such, a new theory of attraction and friendship is constituted, and the conditions for the evolution of human altruism are enhanced. Genetically biased preferences are not limited to social partners but extend to adopting other cultural practices maximally compatible with genotypes. Ethnocentrism and patriotism may be fitness-enhancing mechanisms that enable group selection to occur.

Choosing social partners is among the most important decisions individuals make affecting their social environment. The tendency is to choose similarity. For example, spouses tend to resemble each other in such characteristics as age, ethnic back-

ground, socioeconomic status, physical attractiveness, religion, social attitudes, level of education, family size and structure, intelligence, and personality. The median assortative mating coefficient for standardized intelligence tests averages about 0.35. Correlations tend to be higher for opinions, attitudes, and values (0.40 to 0.70) and lower for personality traits, personal habits, and physical features (0.02 to 0.30).

Most explanations of the role of similarity in human relationships focus on immediate, environmental effects, for example, their reinforcement value. Recent analyses, however, suggest that genetic influences may also be involved. According to "genetic similarity theory," genetic likeness exerts subtle effects on a variety of relationships and has implications for the study of social behavior in small groups and even in large ones, both national and international. The main purpose of genetic similarity-seeking is to enhance altruism.

### **The Paradox of Altruism**

As recognized by Darwin (1871), altruism represents a paradox for theories of evolution: How could altruism evolve through "survival of the fittest" when, on the face of it, altruistic behavior diminishes personal fitness? If the most altruistic members of a group sacrifice themselves for others, they run the risk of leaving fewer offspring to pass on the very genes that govern the altruistic behavior. Hence, altruism would be selected against, and selfishness would be selected for.

The resolution of the paradox of altruism is one of the triumphs that led to the new synthesis called sociobiology. By a process known as kin selection, individuals can optimize their inclusive fitness rather than only their individual fitness by increasing the production of successful offspring by both themselves and their genetic relatives (Hamilton 1964). According to this view, the unit of analysis for evolutionary selection is not the individual organism but its genes. Genes are what survive and are passed on, and some of the same genes will be found not only in direct offspring but in siblings, cousins, and nephews and nieces, as well as more distant kin. If an animal sacrifices its life for its siblings' offspring, it ensures the survival of common genes because, by common descent, it shares 50 percent of its distinct genes with each sibling and 25 percent with each sibling's offspring.

From an evolutionary perspective, altruism is a means of helping genes to propagate. By being most altruistic to those with whom we share genes, we help copies of our own genes to replicate. This makes "altruism" ultimately "selfish" in purpose. Promulgated in the context of animal behavior, this idea became known as "kin selection" and provided a conceptual breakthrough by redefining the unit of analysis away from the individual organism to his or her genes, for it is these that survive and are passed on. Another way sociobiologists have suggested that altruism could evolve is through reciprocity. Here there is no need for genetic relatedness; performing an altruistic act need only lead to an altruistic act in return.

### Detecting Genetic Similarity

In order to pursue a strategy of directing altruism toward kin, the organism must be able to recognize degrees of relatedness. There is clearly no such thing as "genetic extrasensory perception." For individuals to direct altruism selectively to genetically similar individuals, they must respond to phenotypic cues. This is typically accomplished by detecting similarities between self and others in physical and behavioral cues. Four processes have been suggested by which animals recognize relatives: (1) innate feature detectors, (2) matching on appearance, (3) familiarity, and (4) location. They are not mutually exclusive. If there are evolutionary advantages to be gained from the ability to detect genetic similarity, all the mechanisms may be operative.

**Innate feature detectors.** Individuals may have "recognition alleles" that control the development of innate mechanisms allowing them to detect genetic similarity in strangers. Dawkins (1976) suggested a thought experiment to illustrate how this could come about, known as the "green beard effect." In this, a gene has two effects: it causes individuals who have it (1) to grow a green beard and (2) to behave altruistically toward green-bearded individuals. The green beard serves as a recognition cue for the altruism gene. Altruism could therefore occur without the need for individuals to be directly related.

**Matching on appearance.** The individual may be genetically guided to learn its own phenotype, or those of its close kin, and then to match new, unfamiliar individuals to the template it has