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# Vertebrate Social Behavior

Discussion of the scientific literature, both theoretical and empirical, pertaining to the evolution of social behavior in vertebrates, including humans.

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## Human Cooperation: Competition Has Scales

Bernie Crespi begins his commentary on a *Current Biology* article by West et al. (2006) with a quote describing the skilled cooperation required for humans to construct nuclear weapons. This (partially) amusing quotation initiates a brief but insightful discussion of the target article. In brief, Crespi begins by emphasizing that an important contribution made by the paper by Stu West and his colleagues is to consider the **spatial scale** of competition and its effect upon the differential costs and benefits of cooperation for individuals of a population (however defined). Reviewing a few fundamental ideas from the behavioral ecology literature, Crespi reminds us that [the dispersion of limiting resources may] "create opportunities to compete and cheat" (p. 414) and that [where the distribution and abundance of limiting resources in time and space favor groups], a fundamental problem has been that of **sustaining** cooperation once it is expressed since the benefits of cheating often, if not usually, outweigh the benefits of cooperating. Crespi expresses a central view of West et al. (2006) as: The "spatial scale of competition can drive evolutionary dynamics of social interactions among non-kin." which is hypothesized to be a function of whether competition is local or global. Reminding us that Darwin and others have shown that fitness is a **relative** concept (relative to others in a population), Crespi expresses the (spatial) ideas of West et al. (2006) as follows:

**Cooperation Local, Competition Global----> Local Cooperation Favored by Selection**

**Competition Local, Cooperation Global----> Local Competition Favored by Selection**

where Local implies within a group, and Global implies in the population at large.

Crespi states that the first conditions characterize contemporary human societies. As well, they characterize what is known about Early Human Societies. Unless I am mistaken, the first conditions are thought to be requisites for "group [interdemc, multilevel] selection (if a significant selective mechanism).

Crespi's treatment implies to me that individuals within a group exhibit a share of, shall we say, cooperative output (percentage) of that group, and the same logic may be applied to populations. Apparently, the (fitness) benefits of cooperation will rarely outweigh cooperation; thus, researchers have actively investigated ways in which cooperation might be imposed (self-restraint and the reasons for it [e.g., high coefficients of relatedness in groups]; persuasion; coercion; force). As Crespi points out, the topic of spatial scale is important for investigations of all social animals.

Crespi, B.J. 2006. Cooperation: Close friends and common enemies. *Current Biology* 16: 414-415.

West, S.A., Gardner, A., Shuker, D.M., et al. 2006. Cooperation and the scale of competition in humans. *Current Biology* 16: 1103-1106.

Posted by Clara B. Jones at 12:21 PM 

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