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## Intergroup Prejudices and Intergroup Conflicts

MARK SCHALLER

*University of British Columbia*

STEVEN L. NEUBERG

*Arizona State University*

Group stereotypes. Ethnic prejudices. Wars. These are substantial social problems, and they attract the attention of many social scientists, including psychologists who study social cognition and behavior. That's good. But in order to grapple intelligently and realistically with these problems, it is important to consider not just the insights of the social sciences but the biological sciences as well. The roots of modern prejudices and intergroup conflicts can be found in the ecological circumstances within which our species evolved and in the psychological processes that emerged as adaptations to those circumstances. Inquiry into these evolved psychological processes helps us understand intergroup stereotypes and prejudices, and how these contribute to various forms of discrimination as well as to full-blown intergroup conflict. An evolutionary analysis also yields novel insights into the circumstances under which these prejudices may be exaggerated or inhibited. These insights may prove useful in the development of interventions that might actually help alleviate intergroup discrimination and conflict in the modern world.

### AN EVOLUTIONARY PERSPECTIVE ON THREATS AND PREJUDICES

Wars do not just happen; they result from actions taken by individual people. More generally, any act of intergroup discrimination is either directly or indirectly the product of the psychological

processes that govern individuals' attitudes, decisions, and behavior. If we want to understand the roots of intergroup conflict, we first need to understand the specific thoughts and feelings that are aroused in intergroup contexts. Here is where an evolutionary approach to psychology comes in handy.

A rigorous evolutionary approach to social psychology typically entails a four-step process: (1) The specification of plausible fitness-relevant "problems" recurrently posed by ancestral social environments; (2) the employment of an evolutionary cost-benefit analysis to deduce plausible psychological adaptations that would have helped "solve" those problems; (3) the deduction of hypotheses specifying exactly how these alleged adaptations govern cognition, emotion, and behavior in contemporary human environments; and (4) the use of empirical data to test these hypotheses.

This general strategy of inquiry has been enormously successful in the study of human social cognition (Schaller, Park, & Kenrick, 2007). Within that broad sphere of inquiry, this strategy has also yielded many novel insights about the psychological bases of stereotypes, prejudices, and various forms of behavioral discrimination. Many of these insights result from programs of research that connect specific kinds of ancestral threats to specific kinds of contemporary prejudices (Kurzban & Leary, 2001; Neuberg & Cottrell, 2006).

There are a variety of distinct kinds of enduring fitness-relevant threats posed by the presence of specific people. A person might be angry and seek to do you harm. A person might exploit your generosity and never reciprocate. A person might be infected with some disease-causing parasite and infect you, too. Humans evolved to be sensitive to cues indicating that particular people might pose threats such as these. For instance, we are hypervigilant to facial expressions signaling anger and are highly adept at identifying individuals with a history of exploitive nonreciprocation (E. Fox, Russo, Bowles, Dutton, 2001; Mealey, Daood, & Krage, 1996). The perception of threat-connoting cues automatically triggers aversive cognitions and emotions. For instance, when we perceive someone marked by symptoms signaling the possible presence of parasites (e.g., hacking coughs, open sores) disease-connoting cognitions are quickly activated into working memory and we feel disgusted (Curtis, Aunger, & Rabie, 2004; Schaller & Duncan, *in press*).

Specific threats are best evaded by engaging in specific behavioral responses, and these behavioral responses are facilitated by specific emotions and cognitions. The implication is that each specific kind of social threat (and the specific set of cues signaling that threat) is likely to arouse a specific suite of emotional and cognitive responses. The perception of a face marked by open sores is likely to inspire disgust and disease-connoting cognitions, whereas the perception of an angry face is likely to inspire fear and specific cognitions consistent with a fearful response. Thus, each specific threat is associated with a unique "prejudice syndrome" characterized by a functionally specific suite of emotional, cognitive, and behavioral responses (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2006).

Our goal in this chapter is to discuss some intergroup threats and their implications for our understanding of contemporary stereotypes, prejudices, and intergroup conflict. We focus first, and most extensively, on a set of psychological processes that may have evolved as a means of facilitating adaptive behavioral responses to actual intergroup aggression during ancestral times. A close consideration of these processes helps us understand why intergroup conflict is such a tragically enduring part of human life. It helps us to predict the circumstances under which intergroup conflict is especially likely to be triggered and sustained. It also provides some useful insights into circumstances that may help promote peacemaking instead.

We then discuss two additional, conceptually distinct sets of psychological processes that likely evolved to help our distant ancestors manage some of the threats commonly arising within their social groups, but that also have significant implications for intergroup relations. A consideration of these processes implicates at least two additional forms that intergroup discrimination may take, and leads to specific predictions about circumstances under which these forms of discrimination may be especially likely, or unlikely, to emerge.

## THE NATURE OF GROUP AND INTERGROUP RELATIONS DURING ANCESTRAL TIMES

A vast amount of human evolutionary history occurred during times in which our species and its precursors lived as hunter-gatherers. Anthropological, archeological, and zoological evidence suggests that individuals lived in and identified with relatively small subsistence groups. These subsistence groups served as a fundamental unit of social interaction. Within more recent evolutionary history, it appears that a superordinate kind of group coalition may have become relevant as well—a tribal coalition consisting of multiple, geographically proximal, mutually cooperative subsistence groups. Group life provided individuals with significant fitness-relevant opportunities and benefits. For instance, it offered efficient means for finding mates and raising offspring, enabled individuals to more effectively exploit natural resources necessary for survival, and provided a powerful buffer against predators (including those posed by other human groups; see Kurzban & Neuberg, 2005). Group life also had its costs, however, and likely introduced a variety of fitness-relevant problems related to managing intragroup effectiveness and the risks posed by living in immediate proximity to others. Psychological adaptations designed to reduce these risks would have included, for instance, specific inclinations to stigmatize in-group members who violate norms of social exchange and to avoid those who carry infectious diseases (e.g., Cosmides, 1989; Neuberg & Cottrell, 2006; Schaller & Duncan, in press).

Individuals were also likely attuned to the threat of injury posed by individuals from other coalitional groups—from out-groups. Although the vast majority of social interactions historically occurred within groups, some intergroup interactions are likely to have occurred as well. Many different kinds of evidence indicate that, historically, intergroup interactions were marked by hostility and violence.

### *Other Primate Populations*

It is likely that some of the basic psychological processes pertaining to intergroup behavior emerged long ago, before the emergence of *Homo sapiens*. Consequently, inferences about the social structures of relevant ancestral populations may be informed by observations of other primate populations that share the same evolutionary history. Although there is variability in the nature of the intergroup interactions of different primate species (see Smuts, Cheney, Seyfarth, Wrangham, & Struhsaker, 1986), there are a number of cross-species regularities that allow reasonably confident conclusions about common ancestors (Wrangham, 1987).

Within most primate species, groups are territorial to some degree, and relations between those groups tend to be hostile. Evidence of intergroup hostility is readily apparent from observations of chimpanzees. Dugatkin (1997, p. 132) summarizes the nature of between-group encounters among chimpanzees as follows: “Such encounters on occasion can be friendly, and even solicited... but most often they are not.” Raids into another group’s territory often result in bloodshed, and the cumulative impact of this sort of violence can, on occasion, result in the total destruction of a group (Goodall, 1986). Among chimpanzees and other primates, intergroup aggression has a distinctly more violent character than aggression within groups (e.g., Goodall, 1986; Southwick, Siddiqi, Farooqui, & Pal, 1974). Goodall observed that out-group victims “are treated more as though they were prey animals” (p. 532), and concluded that chimpanzee aggression against out-group members is “prompted by what appears to be an inherent dislike or ‘hatred’ of strangers” (p. 331).

Within this context, it is worth noting a sex difference we shall revisit later. Among the primate species most closely related to human beings, intergroup hostilities involve males more than females (Carpenter, 1974; Cheney, 1986; Wilson & Wrangham, 2003). Male chimpanzees range more widely than females (Hasegawa, 1990), and “patrol groups” that travel to territorial boundaries—and so are especially likely to encounter patrolling members of other communities—tend to be comprised entirely or primarily of males (Goodall, 1986). The “inherent dislike” of strangers noted

by Goodall will thus have more opportunities for expression in males (and against males). In contrast, when reproductive possibilities are limited, female chimpanzees may approach other communities and, if sexually receptive at the time of contact, may be accepted by that group's males; given this possibility of migration and acceptance, it would make sense that female chimpanzees possess the potential for out-group tolerance in addition to dislike. In all, several pressures would seem to logically contribute to the tendency for male chimpanzees to be especially hostile toward out-group members, and toward out-group males in particular (Goodall, 1986; Wilson & Wrangham, 2003).

## CONTEMPORARY HUMAN HUNTER-GATHERER POPULATIONS

Just as with different primate species, there is much variation across different human hunter-gatherer societies in different geographical regions (Kelly, 1995). Nonetheless, there are commonalities across otherwise diverse populations, and these commonalities offer clues to group structures and intergroup behavior in our prehistoric past.

Q1 Human hunter-gatherer societies tend to be territorial (Eibl-Eibesfeldt, 1974; Kelly, 1995; Robarchek, 1990). Kelly (1995, p. 185) observed that within all hunter-gatherer societies individuals "have specific use rights or statuses as members of a group or band that connect them with a particular area," and concluded that, "upon reconsideration of ethnographic evidence, we see that no society has a laissez-faire attitude toward spatial boundaries." Individuals seeking to cross another group's territory engage in carefully articulated rituals of permission seeking to do so. Unsolicited trespasses onto out-group territory can be dangerous. For instance, Lebzelter (1934, p. 21) observed of the !Kung "bushmen" of Africa that, "Every armed man is considered as an enemy. The Bushman must not enter other tribal territory, except unarmed. When a Bushman is sent as a messenger to another farm, the mutual hostility will not permit him to leave the path that is recognized as some kind of neutral zone" (translated by Eibl-Eibesfeldt, 1974).

Q2 Given these group structures, relations with in-group members are quite different from relations with out-group members. For instance, of the Semai Senoi of Malaysia, Robarchek (1990, p. 66) observed that, "The only source of nurturance and support, the only place where a person can feel secure, is in the band." The anthropological literature on war offers many examples of chronically hostile intergroup relations among hunter-gatherers (Ferguson, 1984; Haas, 1990). The risk of injury and death at the hands of out-group members can be so high in some cases that day-to-day life is marked by chronic vigilance and war readiness in case of attack (Carneiro, 1990). Chronic concern about intergroup hostility is observed even among peoples for whom actual intergroup violence is rare. Intergroup relations between different tribal groups in the Upper Xingu basin in Brazil are famously peaceful, but the potential danger posed by other tribal groups is extremely salient. Gregor (1990, p. 114) concluded that it is exactly this concern with intergroup hostility that maintains the peace: "The Xingu peace relies heavily on institutions that separate the tribes and preoccupy villagers with thoughts of death and violence."

The actual dangers posed by out-group members differs somewhat depending upon the sex of the out-group member. As with nonhuman primates, raiding parties organized for the purposes of penetrating another group's territory are most likely to be comprised of men, so hostilities between such parties is primarily restricted to men (Chagnon, 1988).

## ADAPTIVE FEATURES OF INTERGROUP COGNITION AND EMOTION

Given the dangerous nature of intergroup interactions during vast stretches of human evolutionary history, it is plausible that certain kinds of psychological mechanisms have evolved that helped protect individuals from that danger. These would be mechanisms that promoted behavioral avoidance of unexpected intergroup interactions or, when avoidance was impossible, promoted caution within the context of an ongoing intergroup interaction.

What psychological mechanisms would be necessary to promote avoidance and caution in regard to out-group members? At minimum, mechanisms that allow individuals to quickly and efficiently distinguish between in-group and out-group members would have been necessary. There is abundant evidence that people are extraordinarily adept at this kind of social categorization. Some forms of social categorization are effortful, but distinguishing between “us” and “them” apparently is not. Just as we cannot help but to categorize individuals as male or female, we also cannot help but to identify an individual as belonging to a coalitional in-group or out-group (Brewer, 1988; R. Fox, 1992; Kurzban, Tooby, & Cosmides, 2001).

Merely categorizing an individual as an out-group member is not sufficient to promote avoidance. There must also be some cognitive association linking that out-group, and its members, with some specific connotative or affective information that promotes behavioral avoidance. In short, it requires the activation of some sort of negative stereotype or negative emotional state. However, not just any negative stereotype or negative emotional state promotes avoidance. Some negative emotions, such as anger, promote incaution and behavioral approach. And certain kinds of specific negative stereotypes (“People from Group X are ignorant”) may also fail to strongly dissuade contact. Our evolutionary analysis suggests that fitness advantages may have accrued to individuals for whom out-groups and out-group members automatically triggered specific emotional states (such as fear) and specific kinds of stereotypical trait information (traits connoting danger and threat) that compel behavioral avoidance and caution (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2006). Just as people appear to be biologically prepared to learn to associate fear with evolutionarily relevant nonhuman predators, such as snakes (Öhman & Mineka, 2001), people may also be biologically prepared to learn to associate fear (and danger-relevant stereotypes) with coalitional out-group members. Once these implicit associations are acquired, they may be triggered quite readily upon the perception of out-groups and/or out-group members.

### *Costs, Benefits, and Functional Flexibility*

If we left it at that, we would not have much more to write about. To assert that there exist deep evolutionary roots for the human tendency to fear out-groups, and to hold danger-connoting stereotypes about them, is not really news. Nor does such an assertion by itself provide much useful insight into ways in which stereotypes, prejudices, and intergroup conflicts might be attenuated. What makes this conceptual perspective scientifically interesting and practically useful, however, is the evolutionary cost/benefit analysis that is necessarily a part of it.

Any evolved defense mechanism evolved specifically because it offered fitness-enhancing benefits to the individuals who have those mechanisms, relative to individuals who do not. However, the actual activation and deployment of those mechanisms entails costs as well. The immune system offers a good illustration. The immune system is adaptive: you are much better off having an immune system than not. However, the immune system also imposes costs whenever it is actually triggered by an invasive pathogen. When activated, human immunological responses consume substantial metabolic resources, often to such an extent that individuals are temporarily debilitated. The same is true of psychological defense systems. It is certainly adaptive to have the capacity to experience fear, because that capacity serves to prevent contact with things that might just kill us. However, an actual fearful response consumes metabolic resources. And by diverting resources toward behavioral withdrawal, it temporarily prevents individuals from engaging in other forms of potentially fitness-enhancing behavior (e.g., food acquisition, procreation). Consequently, psychological defense mechanisms, such as fear, are functionally flexible: they are activated differentially (and with different levels of magnitude) depending on the presence of information signaling whether the potential benefits of a defensive response is likely to outweigh the costs associated with that response. If additional information indicates that individuals are highly vulnerable to danger, this signals a greater benefit/cost ratio and is more likely to result in a fearful response. However, if additional information indicates that one is relatively invulnerable to danger, the benefit/cost

ratio is drastically reduced, and a fearful response is less likely to occur. Consider, for example, the acoustic startle reflex—the tendency for sudden loud noises to automatically elicit a fearful startle response. When people are in the dark—an ecological condition that heuristically signals greater vulnerability—the acoustic startle response occurs more strongly (Grillon, Pellowski, Merikangas, & Davis, 1997).

This evolutionary logic of functional flexibility has clear implications for the activation of group stereotypes and prejudices (Schaller, Park, & Faulkner, 2003; Schaller, Park, & Kenrick, 2007). Although there may be some default inclination to perceive out-groups as dangerous, this implicit inclination is likely to vary depending on the extent to which individuals perceive themselves to be vulnerable to that danger. If for whatever reason an individual feels highly vulnerable to harm (whether that perception is realistic or fantastic, and whether it is a chronic attitude or a fleeting concern), then that individual is especially likely to demonize out-groups—to fear them, to perceive them to be stereotypically dangerous, and to feel justified in preemptively acting aggressively toward them. On the other hand, if an individual feels relatively invulnerable to harm, intergroup cognitions and behaviors are likely to be more generous.

The logic of functional flexibility also implies that important sex differences in stereotyping, prejudice, and discrimination may exist. If, like the chimpanzee males just discussed, human males have been more vulnerable than females to the threat of intergroup violence, it suggests that men especially may have benefited from a cautious approach to intergroup contact. If so, men may be more likely to exhibit a default tendency toward viewing out-groups as stereotypically dangerous and to behaving in aggressive ways when viewing themselves to have a relative advantage. Moreover, the prejudicial responses of men (compared to those of women) may be especially sensitive to vulnerability-connoting cues.

## IMPLICATIONS FOR CONTEMPORARY STEREOTYPES, PREJUDICES, AND CONFLICTS

### *Variation in the Acquisition and Activation of Fearful Intergroup Cognitions*

The preceding evolutionary analysis implies three general hypotheses: (1) People have an implicit tendency to fear out-groups and out-group members and to stereotypically associate them with danger-connoting characteristics; (2) this implicit tendency is exaggerated when individuals perceive themselves to be especially vulnerable to harm, and it is attenuated when individuals perceive themselves to be relatively invulnerable; and (3) these tendencies are likely to be especially strong among men. Evidence of various kinds supports all three of these hypotheses.

One manifestation of the alleged inclination to fear out-group members occurs in the associative learning process through which individuals acquire specific stereotypes and prejudices in the first place. People find it easier to learn (and harder to unlearn) aversive responses to out-group faces (e.g., Olsson, Ebert, Banaji, & Phelps, 2005).

Once learned, these danger-connoting stereotypic associations and fearful responses may be activated any time one perceptually encounters an out-group member. Empirical evidence of this tendency shows up not only in self-report data, but also in physiological measures. People show heightened levels of threat-relevant physiological reactions in the presence of unfamiliar out-group members (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Phelps, 2000), and those who show the greatest amygdala activity—an indicator of a fearful response—when viewing out-group faces also possess more negative cognitive associations with the out-group. These findings suggest that individuals have a highly automatized tendency to perceive out-groups as sources of potential danger, and that this perceived danger is linked to prejudicial cognitions.

Even though people may be biologically prepared to associate out-group members with danger, this tendency is malleable. Biological preparedness implies the operation of a learning process and,

as Öhman (2005, p. 713) notes, “what is learned can be unlearned.” Among people with a history of forming interpersonal relationships across group boundaries, there is a reduced tendency to learn a conditioned aversive response to out-group faces (Olsson et al., 2005).

More generally, and consistent with the principle of functional flexibility, there is abundant evidence that danger-connoting stereotypes and prejudices are more or less likely to be activated into working memory depending on individuals’ perceptions of their own vulnerability. For instance, one set of studies revealed that danger-connoting stereotypic traits of Blacks were more strongly activated into working memory among non-Black individuals who (a) chronically believed that the world was a dangerous place and (b) were in the dark (Schaller, Park, & Mueller, 2003). In another study, the same variables predicted Canadians’ prejudicial beliefs about Canada and Iraq: Canadians who were chronically worried about danger and who were in the dark were especially likely to perceive their countrymen as trustworthy and to perceive Iraqis as untrustworthy (Schaller, Park, & Faulkner, 2003). It is worth noting that these effects were specific to danger-relevant prejudices; no effects whatsoever were found on highly evaluative but danger-irrelevant belief items (e.g., beliefs about intelligence).

When a danger-connoting stereotype about an out-group is activated into working memory, it not only influences judgments of the entire out-group, but also influences inferences about individual out-group members. Maner et al. (2005) found that when perceivers felt personally vulnerable to danger—after watching scenes from a frightening movie—they were especially likely to erroneously perceive anger (but not other emotions) in the faces of out-group members (but not in-group members). This perception of anger—an expression that signals dangerousness and hostile intent—occurred even though the target faces were not actually displaying any real emotional signals whatsoever.

This highlights an important point: the effects we have described, and describe next, do not require that a group or group member targeted for prejudice and danger-connoting cognitions *actually* pose a realistic threat. Rather, they merely need to possess a characteristic that has been probabilistically associated with the threat. Large, rapidly approaching men from an unfamiliar group may indeed pose authentic dangers—and likely did in ancestral times—but a particular man so described on the street in a strange city may merely be running past you to catch a bus. Nonetheless, the evolved cognitive system is conservative, and fitness considerations suggest stereotypes and prejudices are likely to err toward characterizing out-groups and their members as dangerous (e.g., Haselton & Nettle, 2006; Nesse, 2005; R. Fox, 1992). Thus, even though the fearful perceivers in the Maner et al. (2005) study were looking at out-group faces with objectively *neutral* expressions, they nonetheless saw them as expressing anger: the skin color of the faces activated thoughts of dangerousness, and so perceivers “saw” danger in the form of anger on the faces. We will see other forthcoming examples of the irrational—but, from an evolutionary perspective, predictable, and protective—nature of prejudicial cognitions.

What about sex differences in these sorts of intergroup cognitions? Consistent with the implications of the evolutionary cost/benefit analysis, there is empirical evidence that men are more likely than women to respond aversively to out-groups. Across many studies, men report higher levels of racism and ethnocentrism than women and are more likely to show in-group favoritism in ratings of ad hoc coalitional groups (e.g., Gerard & Hoyt, 1974; Sidanius, Cling, & Pratto, 1991; Watts, 1996). In addition, in several of the studies previously reviewed here, the prejudicial responses of men showed a greater sensitivity to the presence of vulnerability cues. For instance, in one study reported by Schaller, Park, and Mueller (2003), men showed a stronger interactive effect of chronic vulnerability and ambient darkness on the activation of danger-relevant Black stereotypes. There was a similar sex difference in the study that examined Canadians’ beliefs about Iraqi untrustworthiness (Schaller, Park, & Faulkner, 2003). Several other lines of research also indicate that, compared to women, men perceive more threat within intergroup contexts and are more responsive to that threat in a variety of different ways (Pemberton, Insko, & Schopler, 1996; Van Vugt,

De Cremer, & Janssen, in press). The pattern emerging in these findings suggests that while danger-avoidant intergroup cognitions are triggered across both sexes, they are likely to be triggered especially strongly in men.

### *Instigation and Persistence of Intergroup Conflict*

Our analysis thus far indicates that, because the human brain evolved in a social ecology marked by real intergroup conflict, there emerged a set of psychological mechanisms that dispose individuals to distrust out-groups and their members—to reflexively perceive them as threatening, even in the absence of any explicit evidence of real threat. This can have terrible consequences because, like a self-fulfilling prophecy, these perceptions may precipitate conflict where none existed in the first place. The perception of threat instigates competitive behavior in mixed-motive experimental games (Insko & Schopler, 1998; Kelley & Stahelski, 1971). It contributes to acts of real-world aggression such as bullying and gang violence (Decker & Van Winkle, 1996; Dodge, 1980). It is a causal factor in small-scale tribal conflicts, as well as in large-scale civil and international wars (Bar-Tal, 2001; Chagnon, 1992; Chirot, 2001; Eidelson & Eidelson, 2003; Robarcheck, 1990; Vasquez, 1992).

If stereotypic perceptions of threat precipitate intergroup conflict, and if these perceptions of threat are themselves amplified when individuals feel vulnerable to some sort of peril, the implication is that intergroup conflict is more likely to be precipitated (and sustained) under conditions in which individuals, for whatever reason, feel vulnerable.

Several lines of research are consistent with this perspective. One line of work has examined the impact that ruminations about death and mortality have on conflict-relevant political attitudes and actions. Americans for whom death and mortality are salient are more inclined to vote for a militaristic, conflict-oriented political leader (Cohen, Ogilvie, Solomon, Greenberg, & Pyszczynski, 2005; Landau et al., 2004). Among Americans with conservative political leanings, mortality salience leads individuals to be more supportive of extreme military measures (e.g., the use of nuclear and chemical weapons) and preemptive military attacks against perceived threats to national security (Pyszczynski et al., 2006). These kinds of findings are not peculiar to Americans: Iranians for whom mortality is salient are more likely to endorse martyrdom attacks (e.g., suicide bombings) against nations perceived to be threats (Pyszczynski et al., 2006).

Another line of research has examined how the perceived minority status of one's in-group may lead to conflict-sustaining political attitudes. If, as the cliché suggests, there is safety in numbers, then there is vulnerability in being outnumbered. Consistent with this intuitive notion is evidence from several species—including humans—that when individuals are in a relatively smaller group, they are more hypervigilant to potential dangers from outside the group (e.g., Roberts, 1996; Wirtz & Wawra, 1986). Thus, the very perception of being in a numerical minority group may arouse feelings of vulnerability to danger. This is important because, within many regions marked by persistent intergroup conflict, the members of every warring group may legitimately perceive their own group to be the outnumbered minority. Jews greatly outnumber Arabs within Israel but, within the Middle East more broadly, Arabs greatly outnumber Jews. Sinhalese greatly outnumber Tamils within Sri Lanka but, within southern Asia more broadly, Tamils greatly outnumber Sinhalese. These “double-minority” situations provide a geographical context that may lead all parties to feel they are outnumbered and therefore vulnerable, and that may be especially conducive to intractable conflict.

These double-minority situations also provide a unique opportunity to experimentally test whether conflict-sustaining attitudes are promoted by a “we are the outnumbered group” mindset. Schaller and Abeyesinghe (2006) conducted such a study in Sri Lanka, during a fragile ceasefire in the civil war between the Sri Lankan government and Tamil rebellion forces. The participants were Sinhalese students. An experimental manipulation was introduced in the form of a geography task that temporarily made salient either just the island nation of Sri Lanka (within which Sinhalese outnumber Tamils), or a broader region of south Asia (within which Sinhalese are outnumbered

by Tamils). Following the manipulation, stereotypes and conflict-relevant attitudes were assessed. Results revealed that when participants focused on the broader geographical region (and thus were inclined to think of their in-group as the outnumbered minority), their stereotypic perceptions of Tamils were more demonizing, and their conflict-relevant attitudes were less conciliatory. Particularly notable was the fact that individuals who adopted the vulnerability-connoting minority mindset were less supportive of ongoing attempts to negotiate an end to the civil war. Those who adopted the mindset of the majority group, however, tended to perceive the Tamil out-group in less fearful way, and were more supportive of the peace process.

### ADDITIONAL THREATS, ADDITIONAL PREJUDICES, ADDITIONAL IMPLICATIONS

Our discussion thus far has focused on one particular kind of evolutionarily important intergroup threat and its implications for contemporary intergroup prejudice. However, this is not the only kind of threat associated with out-group members, nor is the resulting prejudice the only form of prejudice directed toward out-group members.

#### *The Threat of Parasite Transmission*

We alluded earlier to the fitness threat posed by carriers of pathogenic parasites. As a result of this threat, it has been suggested that there evolved a sort of “behavioral immune system”—a suite of psychological processes that serve as a first line of immunological defense by promoting avoidance of potentially harmful parasites and their carriers (Schaller, 2006; Schaller & Duncan, in press). This behavioral immune system is triggered by the perception of specific kinds of features indicating that another individual might already be infected. When any such feature is perceived, there ensues the automatic activation of specific emotions and cognitions (e.g., disgust; inferences about disease-connoting traits) that facilitate functional behavioral reactions. This system, like many evolved defense systems, tends to be hypersensitive, erring on the side of false-positive errors rather than false-negative errors. The result is that disease-avoidant responses may be triggered by the perception of people who are perfectly healthy but who just happen to appear, at some superficial level, not quite normal. It seems likely that this set of mechanisms evolved primarily in response to disease threats that existed within an individual’s own social group (i.e., an already infected in-group member). And a growing body of evidence indicates that disease-avoidant responses are triggered by the perception of ostensible in-group members who appear morphologically anomalous in some way (e.g., disfigured or disabled or grossly obese; Park, Faulkner, & Schaller, 2003; Schaller & Duncan, in press). Even so, because of their adaptive hypersensitivity, these processes may also be triggered by the perception of out-group members—especially those who are perceived to be “foreign”—with predictable consequences for intergroup prejudice and discrimination.

There are at least two plausible reasons why a subjective sense of foreignness might serve as a crude cue connoting a heightened risk of parasite transmission. One reason is that contact with individuals from previously unencountered populations is associated with an increased risk of contracting contagious diseases to which one has no acquired immunity. A second reason is that foreign peoples may be unaware of, and thus more likely to violate, local customs (such as those pertaining to food preparation and personal hygiene) that serve as barriers to the transmission of disease. When we infer that another person is fundamentally foreign in some way, it may trigger a concern that the person poses a threat to our physical health.

Consistent with this reasoning, people sometimes display disgust when speaking about ethnic out-groups (Schiefenhövel, 1997) and a greater sensitivity to disgust is associated with higher levels of both ethnocentrism and xenophobia (Navarrete & Fessler, 2006). That last result is consistent with the notion of functional flexibility—the implication that foreign-seeming peoples will inspire

more negative responses when perceivers feel more vulnerable to the transmission of pathogenic parasites. Faulkner, Schaller, Park, and Duncan (2004) conducted a series of studies showing that individuals who were chronically more concerned about their vulnerability to disease also tended to have stronger anti-immigrant attitudes—but only toward immigrants from subjectively foreign locations. There was no such effect on attitudes toward culturally familiar immigrant populations. A conceptually identical conclusion emerged from two experiments (also reported by Faulkner et al., 2004) in which participants were randomly assigned to see a slide show that made salient either the threat of parasite transmission or, in a control condition, the threat of disease-irrelevant dangers (e.g., electrocution). Results revealed more strongly xenophobic attitudes after parasites were made salient. For instance, in one of these experiments, Canadian participants were told about a government program designed to recruit new immigrants to Canada, and then indicated how much of the budget should be spent to recruit immigrants from various nations that had been prerated as either culturally familiar (e.g., Taiwan, Poland) or unfamiliar (e.g., Mongolia, Brazil). Participants who had seen the control slide show allocated roughly equal amounts of money to recruit immigrants from both familiar and unfamiliar places; but those for whom parasite transmission had been made salient were much more likely to allocate money to recruit immigrants from familiar rather than unfamiliar places.

These underlying psychological processes may be implicated in various modern forms of intergroup aggression, such as “ethnic cleansing” and genocide. The horrible effectiveness of Nazi propaganda to inspire the genocidal complicity of ordinary citizens may have resulted, in part, from the fact that this propaganda abounded with text and images that cast Jews explicitly as parasites and vectors of disease (Suedfeld & Schaller, 2002).

### *Threats to the Efficiency of Group Processes*

The presence of foreign peoples may also trigger an additional set of psychological processes that protect groups (and the individual group members whose reproductive fitness depends nontrivially on group-level outcomes) against threats to the efficiency of group processes.

Group living is enormously beneficial to individual-level reproductive fitness, and this fact has many social psychological implications (Brewer & Caporael, 2006; Campbell, 1982; Neuberg, Smith, & Asher, 2000). However, the benefits of group living depend, in part, on the efficiency of within-group interactions and group processes. Any individual who disrupts those interactions, interferes with those processes, or otherwise undermines the efficiency of group living may pose an indirect threat to the reproductive fitness of other group members.

There are a variety of specific kinds of within-group interactions and processes, of course, each of which may have somewhat distinct fitness implications. Some interactions may be devoted to the exchange of consumable resources; other interactions may be devoted to the assortment of mates; still other interactions may be devoted to the education and socialization of children; and so on. However, what virtually all such interactions require, in order to be accomplished most efficiently, is that the individuals involved have similar goals and follow similar normative rules as to the means through which those goals might be achieved. When the collection of individuals disagrees on the basic goals of childhood education, for instance, then it becomes very difficult to accomplish any single educational goal in an efficient manner. At an even more basic level, it is very difficult to accomplish any group-level task if the individuals within the group fail to speak the same language.

For this reason, any person who acts in a manner inconsistent with normative standards may be implicitly viewed by others as a threat to the integrity of the group (Neuberg et al., 2000). Subjectively foreign individuals—who necessarily imply some deviation from local population norms—are likely to be viewed as such a threat and to inspire a specific form of prejudice.

The affective response associated with this form of prejudice is not likely to be fear, nor is it likely to be the sort of core physical disgust associated with parasite-avoidance mechanisms.

Rather, it is likely to be contempt—a combination of moral disgust and anger. The stereotypical trait inferences that accompany this prejudice are not likely to connote hostility or disease, but rather to connote a sort of moral wrongness. Behaviorally, this process is likely to manifest in much the same way that the parasite-avoidance process manifests—in discriminatory actions designed to keep foreign-seeming peoples at a distance. Failing that, group members are likely to marginalize or otherwise exclude these people from access to the institutionalized mechanisms—such as teaching in grade-school classrooms and gaining political office—through which groups socialize their members and accomplish their tasks.

## FINAL THOUGHTS

A full understanding of intergroup prejudice and intergroup conflict requires a consideration of the socio-ecological circumstances in which our ancestors evolved and the problems they faced. From the evolutionary perspective, humans possess a set of adaptations designed by natural selection to address the kinds of threats they have long encountered as social animals. Each prejudice syndrome—comprised of a suite of emotional responses, cognitions, and behavioral inclinations—has been designed to deal with a particular threat. Different groups may elicit qualitatively different prejudices, depending on the threats they are perceived to pose. And some groups—such as populations perceived to be subjectively foreign—will elicit multiple forms of prejudice, because they are perceived to pose multiple forms of threat. These prejudice syndromes can be triggered by superficial features of out-group members that signal “threat” even when the actual threat may be nonexistent. This is especially likely to occur when, for whatever reason, individuals feel vulnerable to that threat. As a consequence—because the perception of threat inspires predictably hostile reactions—these psychological mechanisms forged in our evolutionary past have implications for intergroup conflict in the present.

Some people, especially those with a limited education in biology, tend to view evolutionary explanations of this sort with some dismay. They assume that if some phenomenon has roots in ancient evolutionary processes, then the phenomenon must be inevitable—and that is a depressing conclusion, especially when applied to social problems. This assumption is wrong, however, and the more accurate conclusion is much more optimistic. Many of the psychological processes that contribute to intergroup prejudices and conflicts may indeed have roots in our species’ evolutionary history, and it is precisely *because* of this evolutionary history that these processes are highly flexible and responsive to features of the immediate context. This insight has useful implications for the practical problem of reducing inappropriate prejudices.

First, just as specific forms of intergroup discrimination and conflict may be enhanced in contexts that promote feelings of vulnerability, they may also be attenuated in contexts that promote feelings of safety and security. Objective assessments of (in)vulnerability are perhaps less important than subjective assessments. For instance, regardless of individuals’ actual vulnerability to disease transmission, they may not easily tolerate the proximity of seemingly foreign peoples unless they feel subjectively invulnerable. Similarly, the actual size of groups within a conflict may matter less than individuals’ subjective perceptions of the extent to which their group might be outnumbered by out-group members. Interventions that attend closely to these sorts of perceptions and attempt to constructively alter these perceptions may be especially successful at reducing intergroup hostilities and conflicts.

A second important practical implication results from the modularity implicit in the evolutionary perspective and its more specific corollary that there exists no single intergroup prejudice. Rather, there exist multiple, psychologically distinct prejudices, each of which is implicated by a different kind of threat. Each form of prejudice is triggered by a different set of cues; each is defined by different suite of emotional, cognitive, and behavioral responses; and each is moderated by a different set of variables. Consequently, no single intervention is likely to inhibit all forms of

intergroup prejudice; there is no silver bullet. The fight against intergroup prejudices and intergroup conflicts will almost certainly require a multipronged approach, in which multiple intervention strategies are each devised to address specific prejudice syndromes.

The application of evolutionary principles to intergroup relations is still a young endeavor, yet it is already bearing fruit. The evolutionary approach has illuminated aspects of prejudice that have been long ignored. It has generated a host of novel predictions, empirical discoveries, and implications that may be applied productively to contemporary social problems. These insights are not just interesting; they are important.

## REFERENCES

- Bar-Tal, D. (2001). Why does fear override hope in societies engulfed by intractable conflict, as it does in the Israeli society. *Political Psychology, 22*, 601–627.
- Blascovich, J., Mendes, W. B., Hunter, S. B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology, 80*, 253–267.
- Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer, Jr. (Eds.), *Advances in social cognition* (Vol. 1, pp. 1–36).
- Brewer, M. B., & Caporael, L. (2006). An evolutionary perspective on social identity: Revisiting groups. In M. Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 143–161). New York: Psychology Press.
- Campbell, D. T. (1982). Legal and primary-group social controls. *Journal of Social and Biological Structures, 5*, 431–438.
- Carneiro, R. L. (1990). Chiefdom-level warfare as exemplified in Fiji and the Cauca Valley. In J. Haas (Ed.), *The anthropology of war* (pp. 190–211). New York: Cambridge University Press.
- Carpenter, C. R. (1974). Aggressive behavioral systems. In R. L. Holloway (Ed.), *Primate aggression, territoriality, and xenophobia* (pp. 459–496). New York: Academic Press.
- Chagnon, N. A. (1988). Life histories, blood revenge, and warfare in a tribal population. *Science, 239*, 985–992.
- Chagnon, N. A. (1992). *Yanomamö: The last days of Eden*. New York: Harcourt Brace.
- Cheney, D. L. (1986). Interactions and relationships between groups. In B. B. Smuts, D. L. Cheney, R. M. Seyfarth, R. W. Wrangham, & T. T. Struhsaker, T. T. (Eds.), *Primate societies* (pp. 267–281). Chicago: University of Chicago Press.
- Chiro, D. (2001). Introduction. In D. Chiro & M. E. P. Seligman (Eds.), *Ethnopolitical warfare: Causes, consequences, and possible solutions* (pp. 3–26). Washington: American Psychological Association.
- Cohen, F., O'gilvie, D. M., Solomon, S., Greenberg, J., & Pyszczynski, T. (2005). American roulette: The effect of reminders of death on support for George W. Bush in the 2004 presidential election. *Analysis of Social Issues and Public Policy, 5*, 177–187.
- Cosmides, L. (1989). The logic of social exchange: Has natural selection shaped how humans reason? *Cognition, 31*, 187–276.
- Cottrell, C. A., & Neuberg, S. L. (2005). Different emotional reactions to different groups: A sociofunctional threat-based approach to "prejudice." *Journal of Personality and Social Psychology, 88*, 770–789.
- Curtis, V., Aunger, R., & Rabie, T. (2004). Evidence that disgust evolved to protect from risk of disease. *Proceedings of the Royal Society of London B, 271*, S131–S133.
- Decker, S. H., & Van Winkle, B. (1996). *Life in the gang*. New York: Cambridge University Press.
- Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development, 51*, 162–170.
- Dugatkin, L. A. (1997). *Cooperation among animals: An evolutionary perspective*. New York: Oxford University Press.
- Eibl-Eibesfeldt, I. (1974). The myth of the aggression-free hunter and gatherer society. In R. L. Holloway (Ed.), *Primate aggression, territoriality, and xenophobia* (pp. 435–457). New York: Academic Press.
- Eidelson, R. J., & Eidelson, J. I. (2003). Dangerous ideas: Five beliefs that propel groups toward conflict. *American Psychologist, 58*, 192.
- Faulkner, J., Schaller, M., Park, J. H., & Duncan, L. A. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes and Intergroup Behavior, 7*, 333–353.

- Ferguson, R. B. (1984). *Warfare, culture, and environment*. Orlando, FL: Academic Press.
- Fox, E., Russo, R., Bowles, R., Dutton, K. (2001). Do threatening stimuli draw or hold visual attention in subclinical anxiety? *Journal of Experimental Psychology: General*, *130*, 681–700.
- Fox, R. (1992). Prejudice and the unfinished mind: A new look at an old failing. *Psychological Inquiry*, *3*, 137–152.
- Gerard, H. B., & Hoyt, M. F. (1974). Distinctiveness of social categorization and attitude toward in-group members. *Journal of Personality and Social Psychology*, *29*, 836–842.
- Goodall, J. (1986). *The chimpanzees of Gombe*. Cambridge, MA: Belknap Press.
- Gregor T. (1990). Uneasy peace: Intertribal relations in Brazil's Upper Xingu. In J. Haas (Ed.), *The anthropology of war* (pp. 105–124). New York: Cambridge University Press.
- Grillon, C., Pellowski, M., Merikangas, K. R., & Davis, M. (1997). Darkness facilitates acoustic startle reflex in humans. *Biological Psychiatry*, *42*, 453–460.
- Haas, J. (1990). *The anthropology of war*. New York: Cambridge University Press.
- Hasegawa, T. (1990). Sex differences in ranging patterns. In T. Nishida (Ed.), *The chimpanzees of the Mahale mountains* (pp. 99–114). Tokyo: University of Tokyo Press.
- Haselton, M. G., Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. *Personality and Social Psychology Review*, *10*, 47–66.
- Insko, C. A., & Schopler, J. (1998). Differential distrust of groups and individuals. In C. Sedikides, J. Schopler, & C. A. Insko (Eds.), *Intergroup cognition and intergroup behavior* (pp. 75–107). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kelley, H. H., & Stahelski, A. J. (1970). Social interaction basis of cooperators' and competitors' beliefs about others. *Journal of Personality and Social Psychology*, *16*, 66–91. Q6
- Kelly, R. L. (1995). *The foraging spectrum: Diversity in hunter-gatherer lifeways*. Washington, DC: Smithsonian Institution Press.
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: The functions of social exclusion. *Psychological Bulletin*, *127*, 187–208.
- Kurzban, R., & Neuberg, S. L. (2005). Managing in-group and out-group relationships. In D. Buss (Ed.), *Handbook of evolutionary psychology* (pp. 653–675). New York: John Wiley & Sons.
- Kurzban, R., Tooby, J., & Cosmides, L. (2001). Can race be erased? Coalitional computation and social categorization. *Proceedings of the National Academy of Sciences*, *98*, 15387–15392.
- Landau, M. J., Solomon, S., Greenberg, J., Cohen, F., Pyszczynski, T., et al. (2004). Deliver us from evil: The effects of mortality salience and reminders of 9/11 on support for President George W. Bush. *Personality and Social Psychology Bulletin*, *30*, 1136–1150.
- Lebzelter, V. (1934). *Eingeborenenkulturen von Süd- und Südwestafrika* [English translation]. Leipzig, Germany: Hiersemann. Q7
- Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T., Hofer, B., Neuberg, S. L., et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, *88*, 63–78.
- Mealey, L., Daood, C., & Krage, M. (1996). Enhanced memory for faces of cheaters. *Ethology and Sociobiology*, *17*, 119–28.
- Navarrete, C. D., & Fessler, D. M. T. (2006). Disease avoidance and ethnocentrism: The effects of disease vulnerability and disgust sensitivity on intergroup attitudes. *Evolution and Human Behavior*, *27*, 270–282.
- Nesse, R. M. (2005). Natural selection and the regulation of defenses: A signal detection analysis of the smoke detector principle. *Evolution and Human Behavior*, *26*, 88–105.
- Neuberg, S. L., & Cottrell, C. A. (2006). Evolutionary bases of prejudices. In M. Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 163–187). Psychology Press: New York.
- Neuberg, S. L., Smith, D. M., & Asher, T. (2000). Why people stigmatize: Toward a biocultural framework. In T. Heatherton, R. Kleck, J. G. Hull, & M. Hebl (Eds.), *The social psychology of stigma* (pp. 31–61). New York: Guilford.
- Öhman, A. (2005). Conditioned fear of a face: A prelude to ethnic enmity? *Science*, *309*, 711–713.
- Öhman, A., & Mineka, S. (2001). Fear, phobia, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review*, *108*, 483–522.
- Olsson, A., Ebert, J. P., Banaji, M. R., Phelps, E. A. (2005). The role of social groups in the persistence of learned fear. *Science*, *309*, 785–787.

- Park, J. H., Faulkner, J., & Schaller, M. (2003). Evolved disease-avoidance processes and contemporary anti-social behavior: Prejudicial attitudes and avoidance of people with physical disabilities. *Journal of Nonverbal Behavior, 27*, 65–87.
- Pemberton, M. B., Insko, C. A., & Schopler, J. (1996). Memory for and experience of differential competitive behavior of individuals and groups. *Journal of Personality and Social Psychology, 71*, 953–966.
- Q8 Phelps, E. A., O’Conner, K. J., Cunningham, W. A., Funayama, E. S., Gatenby, J. C., Gore, J. C., et al. (2000). Performance on indirect measures of race evaluation predicts amygdala activation. *Journal of Cognitive Neuroscience, 12*, 729–738.
- Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., Cohen, F., & Weise, D. (2006). Mortality salience, martyrdom, and military might: The Great Satan versus the Axis of Evil. *Personality and Social Psychology Bulletin, 32*, 525–537.
- Q9 Roberchek, C. (1990). Motivations and material causes: On the explanation of conflict and war. In J. Haas (Ed.), *The anthropology of war* (pp. 56–76). Cambridge, U.K.: Cambridge University Press.
- Roberts, G. (1996). Why individual vigilance declines as group size increases. *Animal Behaviour, 51*, 1077–1086.
- Schaller, M. (2006). Parasites, behavioral defenses, and the social psychological mechanisms through which cultures are evoked. *Psychological Inquiry, 17*, 96–101.
- Schaller, M., & Abeyesinghe, A. M. N. D. (2006). Geographical frame of reference and dangerous intergroup attitudes: A double-minority study in Sri Lanka. *Political Psychology, 27*, 615–631.
- Schaller, M., & Duncan, L. A. (in press). The behavioral immune system: Its evolution and social psychological implications. In J. P. Forgas, M. G. Haselton, & W. von Hippel (Eds.), *Evolution and the social mind: Evolutionary psychology and social cognition*. New York: Psychology Press.
- Schaller, M., Park, J. H., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology, 14*, 105–137.
- Schaller, M., Park, J. H., & Kenrick, D. T. (2007). Human evolution and social cognition. In R. I. M. Dunbar & L. Barrett (Eds.), *Oxford handbook of evolutionary psychology* (pp. 491–504). Oxford, U.K.: Oxford University Press.
- Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality and Social Psychology Bulletin, 29*, 637–649.
- Q10 Schiefenhövel, W. (1997). Good tastes and bad tastes: Preferences and aversions as biological principles. In H. MacBeth (Ed.), *Food preferences and taste* (pp. 55–64). Providence, State: Berghahn.
- Sidanius, J., Cling, B. J., & Pratto, F. (1991). Ranking and linking behavior as a function of sex and gender: An exploration of alternative explanations. *Journal of Social Issues, 47*, 131–149.
- Smuts, B. B., Cheney, D. L., Seyfarth, R. M., Wrangham, R. W., & Struhsaker, T. T. (1986). *Primate societies*. Chicago: University of Chicago Press.
- Southwick, C. H., Siddiqi, M. F., Farooqui, M. Y., & Pal, B. C. (1974). Xenophobia among free-ranging rhesus groups in India. In R. L. Holloway (Ed.), *Primate aggression, territoriality, and xenophobia* (pp. 185–212). New York: Academic Press.
- Suedfeld, P., & Schaller, M. (2002). Authoritarianism and the Holocaust: Some cognitive and affective implications. In L. S. Newman & R. Erber (Eds.), *What social psychology can tell us about the Holocaust: Understanding perpetrator behavior* (pp. 68–90). Oxford, U.K.: Oxford University Press.
- Van Vugt, M., De Cremer, D., & Janssen, D. (in press). Gender differences in cooperation and competition: The male warrior hypothesis. *Psychological Science*.
- Vasquez, J. A. (1992). The steps to war: Toward a scientific explanation of Correlates of War findings. In J. A. Vasquez & M. T. Henehan (Eds.), *The scientific study of peace and war: A text reader*. New York: Lexington Books.
- Watts, M. W. (1996). Political xenophobia in the transition from socialism: Threat, racism, and ideology among East German youth. *Political Psychology, 17*, 97–126.
- Wrangham, R. W. (1987). The significance of African apes for reconstructing human social evolution. In W. G. Kinzey (Ed.), *The evolution of human behavior: Primate models* (pp. 51–71). Albany, NY: SUNY Press.
- Wilson, M. L., & Wrangham, R. W. (2003). Intergroup relations in chimpanzees. *Annual Review of Anthropology, 32*, 363–392.
- Wirtz, P., & Wawra, M. (1986). Vigilance and group size in *Homo sapiens*. *Ethology, 71*, 283–286.

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