

The Evolution of Authoritarian Processes: Fostering Cooperation in Large-Scale Groups

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Authoritarianism, comprising conventionalism, authoritarian submission, and authoritarian aggression, is an important factor underlying prejudice and social discrimination and therefore is typically perceived as socially problematic. In contrast, our work examines adaptive features of authoritarianism. Evolutionary game theoretical considerations (e.g., biased social learning) point to authoritarian psychological processes that establish and foster group life (e.g., high levels of ingroup cooperation). First, the evolution of social learning (particularly conformist and prestige biases) leads to the establishment of local and distinct cultural groups (conventionalism). Second, local cultural rules solve coordination dilemmas by transforming these rules into normative standards against which others are evaluated (authoritarian submission). Third, the common rules within a particular culture or group are reinforced by a tendency to reward norm compliance and punish norm deviations (authoritarian aggression). Implications regarding the deduction of novel research questions as well as dealing with authoritarianism as a social problem are discussed.

Keywords: authoritarianism, game theory, group processes, cooperation, evolutionary psychology

During the Second World War, approximately 50 million people died as a consequence of the German war of aggression. The crimes committed by Germans within their own and the usurped territory exceed everything thus far in history in terms of numbers of victims and perpetrators, administrative and organizational sophistication, and brutality. The extent of these atrocities was so large that individuals committing them were believed to have dysfunctional personalities, making them susceptible to the fascist ideologies prevalent in society. This approach is reflected in the concept of the authoritarian personality (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). Since then, a large body of research has confirmed that interindividual differences in authoritarianism can powerfully predict

prejudice, racism, and right-wing extremism (e.g., Altemeyer, 1996; van Hiel & Mervielde, 2005).

Given these direful outcomes, it is obvious that authoritarianism has been regarded as a societal problem. We suggest that, in analyzing the negative effects of authoritarianism and searching for ways to cope with them, possible positive effects of authoritarianism have gone undetected (see also Mullen, Bauman, & Skitka, 2003). Still, in light of the regularity with which authoritarianism has been observed across historical epochs and geographical regions, it seems reasonable to assume a certain adaptive value (for initial attempts, see Eigenberger, 1998; Smither, 1993; van de Wetering, 1996). Exploring why such an apparently negative phenomenon as authoritarianism has evolved, we elaborate on its beneficial effects for group life and, in particular, cohesion and cooperation in large-scale groups. For this purpose, we follow recent approaches defining authoritarianism as a set of general social psychological processes rather than an interindividual differences variable.

Authoritarian Personality and Authoritarian Processes

The core of authoritarianism is made up by three covarying characteristics (Altemeyer,

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1981; Funke, 2005): (a) Authoritarians adhere to social conventions and traditions that they perceive to be endorsed by society and its established authorities (conventionalism), (b) they show a tendency to follow the authorities perceived to embody local norms and, thus, to be established and legitimate (authoritarian submission), and (c) they tend to be aggressive against people or groups of people if they perceive that these targets deviate from established norms and conventions and that the aggression is legitimized by social conventions and authorities (authoritarian aggression).

This threefold meaning of authoritarianism has been borne out by numerous findings. For example, regarding conventionalism, authoritarianism has been shown to correlate with positive attitudes toward conventional groups and negative attitudes toward unconventional groups (Lambert & Chasteen, 1997). Furthermore, after exposure to information about descriptive norms (i.e., the average responses to questionnaires), authoritarian participants adjusted their answers (i.e., scored closer to the average), whereas nonauthoritarians did not (Altemeyer, 1988, 1996). Regarding authoritarian submission, authoritarianism has been found to correlate with trust in political leaders (Altemeyer, 1981) and positive attitudes toward highly achieving, successful people (Feather, 1993). Third, regarding authoritarian aggression, authoritarianism has been shown to correlate with preferences for severe punishment of lawbreakers, unless the wrongdoers were admired officials or the crimes were targeted against unconventional, norm-violating victims (Altemeyer, 1981, 1988). Thus, authoritarianism implies strong reinforcement of social conventions and norms.

Although authoritarianism has mostly been studied from an interindividual differences perspective, several recent approaches suggest that it can be conceived of as a set of general social psychological processes (Duckitt, 1989; Kreindler, 2005; Stellmacher & Petzel, 2005). According to these approaches, building on Self-Categorization Theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), conventionalism, authoritarian submission, and authoritarian aggression are general processes following from identification with a group. If people identify with a social group, they perceive everything affecting this group (the ingroup) as

important. They try to be similar to what is prototypical for their group and stick to group norms. Because group norms serve as evaluative standards, compliance with group norms is evaluated positively and norm deviation is evaluated negatively (e.g., Abrams, Marques, Bown, & Henson, 2000; Mummendey & Wenzel, 1999). Thus, highly identified group members tend to admire individuals who represent the group best (i.e., leaders, prestigious people; Hogg & van Knippenberg, 2003) and tend to punish perceived violations of group norms (e.g., Carlsmith, Darley, & Robinson, 2002).

The generality of (group) authoritarianism is evidenced, first, in the existence of authoritarianism not only in the United States and Western Europe but also in countries such as Bulgaria, Poland, Japan, New Zealand, and the former Soviet Union (e.g., Kimmelmeier et al., 2003; McFarland, Ageyev, & Abalakina, 1993). Second, authoritarian processes have not only been observed on the societal or national levels, but also in groups commonly believed to be nonauthoritarian such as students, psychologists, and Green Party voters in Germany (Stellmacher & Petzel, 2005). Building on these considerations, the argument we want to put forward is that the general psychological processes representing authoritarianism drive the well-known undesirable effects of authoritarianism but, at the same time, also bring about more desirable (but functionally equivalent) phenomena. Exploring the adaptive nature of authoritarianism helps illuminate this functional similarity of such seemingly different or even opposed social phenomena.

The Evolution of Authoritarianism

Focusing on evolutionary processes in a broad sense including biological as well as cultural evolution, we suggest how authoritarian processes may be selected for and how they may be maintained. An evolutionary approach explains the purposes or adaptive functions of particular characteristics. What are the adaptive functions of the three interrelated processes of conventionalism, authoritarian submission, and authoritarian aggression?

We propose that authoritarian processes foster coordination of activities and cooperation in large-scale groups. Well-functioning groups

provide an environment in which their members can reap higher benefits compared with members of less coordinated groups. Moreover, in times of external threat (e.g., by environmental factors such as famines, cold winters, or by other groups in intergroup competition), well-coordinated groups may be more likely to cope with these challenges successfully.

Whereas classic explanations for the evolution of cooperation such as kin selection and reciprocal altruism cannot fully explain cooperation in groups larger than dyads, small groups, and families (Boyd & Richerson, 1995; Fehr & Henrich, 2003), conditional cooperation with the tendency to reward norm compliance and to punish norm deviance has been suggested as the basis of cooperation in large-scale groups (Gintis, Bowles, Boyd, & Fehr, 2003). We propose that authoritarianism represents the set of psychological processes implementing these features. Thus, we show how reliance on conventions, submission to norm systems and the authorities embodying them, and aggression against norm violators has an adaptive value in increasing rates of cooperation in groups and, in turn, enhancing group performance. However, high group functionality may often implicate negative consequences for outgroups (e.g., most obvious in such intergroup conflicts as war) and for individuals or subgroups within the ingroup who are perceived as deviating from group norms, and thus often is not what one may wish from an ethical or political perspective.

Group-Based Cooperation

Human cooperation is a remarkable feature that exceeds the amount of cooperation in most other species (except social insects, for which, however, other explanations seem to be more appropriate; e.g., Hölldobler & Wilson, 1990). Cooperation between genetically related individuals can be explained by kin selection (Hamilton, 1964), and cooperation in dyads and small groups by reciprocal altruism (e.g., Axelrod, 1984; Trivers, 1971). However, human cooperation in large-scale groups needs additional explanations. These are offered by models of indirect reciprocity (e.g., Nowak & Sigmund, 2005), reputation building (Sigmund, Hauert, & Nowak, 2001), and group selection (Sober & Wilson, 1998). On this basis, we will trace back authoritarianism to the evolution of

social learning and biased transmission (Boyd & Richerson, 1995; Richerson & Boyd, 1998).

Group-based cooperation means that individuals cooperate with others who belong to the same group (Boyd & Richerson, 1987; Nettle & Dunbar, 1997; Riolo, Cohen, & Axelrod, 2001). Group membership is denoted by tags or markers. Such tags could, in principle, be any sign that indicates common group membership and differentiates ingroup members from outgroup members (e.g., clothes, language, dialects, ornaments, etc.). Group-based cooperation will be evolutionarily stable if several conditions are fulfilled. First, people have to cluster according to their common tag; the probability of meeting individuals with the same tag should be higher than the probability of meeting individuals with other tags (Peck, 1993; Skyrms, 1996). Consistent with this condition, similarity leads to attraction (Byrne, 1971), especially for authoritarian people (Smith & Kalin, 2006), and shared group membership leads to a preference for greater proximity (Shah, Brazy, & Higgins, 2004). As explained below, biased social learning further enhances the similarity of individuals within each cluster or social group. Second, individuals with the same tag have to cooperate preferentially with each other. According to Skyrms (1996), if individuals of the same type interact preferentially with each other in Prisoner Dilemma-like situations, symmetrical decisions (e.g., cooperation-cooperation) will be more likely than nonsymmetrical decisions (e.g., cooperation-defection). Thus, a strategy of “cooperate with individuals having the same tag, defect against individuals having other tags” will evolve (Chalub, Santos, & Pacheco, 2006), and cooperation will become a stable equilibrium. Consistent with this condition, several studies revealed that greater similarity (e.g., by mimicking the other person) enhances rates of cooperation by the other (e.g., Park & Schaller, 2005; van Baaren, Holland, Kawakami, & van Knippenberg, 2004).

However, all this depends on whether the ingroup tags allow a reliable differentiation between cooperative and uncooperative individuals. If individuals can easily pretend to be cooperators by faking the tags, group-based cooperation will decrease (Sigmund & Nowak, 2001). Thus, the validity of markers needs to be ensured by the selection of signs that are difficult to fake (e.g., language, dialects, expert lan-

guages, traditions; see Nettle & Dunbar, 1997) or by punishment of individuals faking, cheating, or scrounging for cooperation. We suggest that authoritarian processes come into play here. By relying on group conventions, adopting them as moral standards, and rewarding norm compliance and punishing norm deviations, tags signaling group membership and the tendency to cooperate become reliably connected. To explain the evolution of authoritarian processes, we focus on social learning as the basis of cultural evolution.

The Evolution of Social Learning and Biased Transmission

Social learning as a general form of imitating others is an important evolutionary improvement of learning abilities. Social learning leads to cultural evolution and, in consequence, group-specific traditions and conventions. With social learning, we refer to any acquisition of information or abilities through the observation of others. Humans have a high ability to detect the intention of observed behavior, allowing functional imitation (Tomasello, 2000). Even small children can identify the intention guiding a particular behavior and imitate the successful parts of the behavior (e.g., Carpenter, Akhtar, & Tomasello, 1998; Gergely, Bekkering, & Kiraly, 2002). Social learning improves individual learning because each learner can start with the acquisition of what others already know. On the basis of this observation, he or she can then improve common knowledge by individual learning, which leads to the accumulation of common wisdom that improves with time.

However, not everything observed should be imitated. What preferences should social learners develop to increase the likelihood of learning advantageous things? Highly advantageous under various conditions is a tendency to copy what seems most common (Boyd & Richerson, 1995; Henrich & Boyd, 1998). Because it is unlikely that many individual learners have learned the wrong thing in the past, it is safe to do what *most* others do. Conformity to the majority is a strong determinant of attitude confirmation and change (Asch, 1956; Cialdini & Goldstein, 2004).

In addition to relying on the majority, individuals tend to learn preferentially from the successful. Although it may be easy to detect

who is successful (the rich, the older, the commonly admired, etc.), it is more difficult to decide which feature or behavior leads to success. Henrich and Gil-White (2001) suggested that individuals therefore imitate the successful or prestigious by trying to imitate the whole person. Thus, the imitation of successful or prestigious people is an additional biased learning rule that improves individual learning.

The Evolution of Conventionalism

We suggest that biased social learning is the basis for the evolution of conventionalism. By social learning, individuals acquire shared knowledge about their environment and how to cope with environmental challenges. Individuals also imitate arbitrary local conventions and rules of coordination. Such conventions are “true,” not because they accurately represent a current state of affairs but because most group members have the same knowledge and act accordingly. Because cultural evolution (i.e., the accumulation of knowledge about the local environment) is a fast and efficient process, different groups may develop different local traditions, customs, conventions, and rules of negotiations even if they inhabit a similar environment. Thus, various groups with different local norms and conventions arise.

The development of arbitrary conventions by the tendency to conform to the majority has the additional effect of solving coordination problems in social interactions (e.g., driving on the left or the right side, signs of approval and disapproval, or making contracts; see Skyrms, 1996). According to Alvard and Nolin (2002), such solutions to coordination problems are necessary for successful mutual cooperation. Several studies showed that common knowledge serves such a coordination function (e.g., Metha, Starmer, & Sugden, 1994) and is necessary for individuals to assume (indirect) reciprocity, which again facilitates cooperation (Yamagishi, Jin, & Kiyonari, 1999).

What the majority believes seems to be a truth criterion; group members typically take local conventions with the assumption of truth as they take knowledge about facts. This assumption of truth leads to a perception of righteousness of ingroup members conforming to these conventions (Schachter, 1951). Accordingly, Altemeyer (1988) sees self-righteousness

as a core feature of authoritarianism. Although these norms and conventions may not necessarily be conceived as “moral standards,” people evaluate others with reference to them. Group members start liking their fellow ingroup members because they are similar, and interactions work with fewer embarrassing moments (Hogg & Hains, 1996).

The Evolution of Authoritarian Submission

The process of conformity explains the tendency toward conventionalism. Local group conventions solve coordination problems within groups. Such conventions are not only seen as true but also become prescriptive because interactions among individuals conforming to the same conventions have a higher chance to succeed. Thus, group members should care that their fellow members stick to the same conventions. Moreover, if local group norms distinguish ingroup from outgroup members, some group features obtain a signaling function. They indicate who sticks to the same norms as oneself and, therefore, becomes a preferred partner for cooperative interactions. In sum, the necessity to conform to the same conventions and the signaling function of group membership convert descriptive norms (e.g., the average) and arbitrary conventions into rules with a prescriptive character. Thus, highly identified group members take ingroup attributes as prescriptive (Mummendey & Wenzel, 1999) and show high levels of ingroup loyalty. This formula help to prevent the dissolution of the group even in the face of external threat (Van Vugt & Hart, 2004).

Ingroup norms affect who is perceived as successful in a local environment. Those individuals who best represent the local norms are the most preferred interaction and cooperation partners. Hence, they are prestigious in the sense that they attract other group members' attention, are evaluated positively, and are admired (Hogg & Hains, 1996). These prototypical and prestigious group members are seen as group leaders to which group members submit freely because they expect to gain knowledge and guidance for the right behavior (e.g., Turner, 2005). Research has shown that individuals best representing current group norms will be elected as leaders (Hogg & van Knippenberg, 2003), prototypical leaders re-

ceive stronger endorsement by their group than less prototypical leaders (Platow & van Knippenberg, 2001), and failures are more easily forgiven if committed by prototypical compared with less prototypical leaders (van Knippenberg & van Knippenberg, 2005). Which features indicate leadership is determined by the local group norms and current contextual requirements. For instance, Sherif (1966) showed in his Robbers Cave study that the most creative and likable pupils were elected as group leaders during the phase of group formation, but in intergroup competition these pupils lost their status and the fiercer pupils became leaders.

It is noteworthy that authoritarian submission refers to why people follow group leaders. In contrast, group leaders themselves would not necessarily evolve to be “authoritarian” in the sense of adopting a style of autocratic leadership (Van Vugt, Jepson, Hart, & De Cremer, 2004; see Van Vugt, 2006, for an evolutionary account of leadership). People seem to dislike leaders pushing themselves into a leadership position (Smith, Larimer, Littvay, & Hibbing, 2007). They prefer to see leaders and authorities as ingroup focused rather than as self-interested (Sherif, 1966) and favor those who apply fair procedures and treat group members with respect (Boehm, 1999; Tyler & Blader, 2003).

The Evolution of Authoritarian Aggression

Biased social learning explains the evolution of conventionalism. In addition, the particular value of local group norms because of their usefulness in solving coordination problems leads to a particular value of these norms and, in turn, to admiration of highly normative, successful, prestigious people. We suggest that this submission to group norms and authorities may be the basis of seeing group norms as *moral* norms. In addition, any norm will obtain moral quality if norm conformity and deviation are recognized and people reward norm adherence and punish norm deviation (Harms & Skyrms, in press).

The tendency to punish norm deviants and reward norm compliance corresponds to the strategy of strong reciprocity, that is, to cooperate with and reward cooperators and punish defectors (Gintis et al., 2003). This punishment

is sometimes called altruistic because the punisher even invests resources such as time, money, reputation as a nice person, and so forth to punish the defector without an immediate positive effect on the punisher. Such behavior is consistently shown in the Ultimatum Game (Güth, Schmittberger, & Schwarze, 1982), in which receivers typically reject unfair allocations with the effect (known a priori) that both the distributor and the receiver obtain no money (Henrich et al., 2005). The tendency to punish unfairness is also demonstrated in experiments in which the punisher observes an unfair behavior without being directly affected. Still, a substantial proportion of individuals invest money to punish (Fehr & Feschbacher, 2004).

Such a tendency poses an evolutionary problem because punishment and reward form an additional common good on which individuals can free-ride. Any norm-compliant individual who is cooperative and fair to his or her fellow group members but does not invest in punishment and reward is a free-rider on this second-order common good. Several accounts have been proposed as an explanation. According to Boyd and Richerson (1992), punishment may allow every group norm to become fixed. However, cultural group selection favors norms that are beneficial for the group (Soltis, Boyd, & Richerson, 1995). Hence, groups including individuals who punish foster norm compliance within their group, thereby enhancing group functioning and increasing common goods. Although common goods typically tend to shrink without a punishing option, they increase and will be maintained if a punishing option is introduced (e.g., Fehr & Gächter, 2002; Ostrom, Walker, & Gardner, 1992; Yamagishi, 1986). Punishment raises the contribution rates even if group members play only for one round together and new groups are composed in further rounds.

Moreover, punishment may be individually costly as long as only a few group members punish. However, with more group members punishing, it becomes less costly for each individual because someone will punish a norm-violating member. In addition, if the tendency to punish is common, norm deviations will be less likely. This argument suggests that intergroup competition plays a major role in the development of the punishment tendency and, hence, for high levels of cooperation in social

groups (Bowles, 2006; Sober & Wilson, 1998). However, because group selection can have substantial influence only in specific conditions (Williams, 1966; but see Sober & Wilson, 1998), there is a debate about alternative ways in which strong reciprocity may have evolved. Promising approaches of individual selection have been developed (Fowler, 2005; Hauert, Traulsen, Brandt, Nowak, & Sigmund, 2007; Johnstone & Bshary, 2004; Panchanathan & Boyd, 2004).

Finally, labor market experiments have shown that the option to reward the fulfillment and to punish the infringement of contracts between employee and employer can even lead to overfulfillment of contracts in contrast to situations without reward or punishment options (in which contracts are typically foiled; Fehr, Gächter, & Kirchsteiger, 1997). Evidence also suggests that individuals do not avoid groups in which punishment is common. To the contrary, they tend to change from groups in which punishment is not allowed to groups in which a punishment option is available and punishment is used (Güerker, Irlenbusch, & Rockenbach, 2006). Thus, people seem to prefer groups in which the behavior of group members is recognized and evaluated.

Authoritarian Processes and Intergroup Behavior

Authoritarianism could be seen (as argued so far) as processes that are generally directed toward the ingroup and its norms (see also Kreindler, 2005). However, authoritarianism as a measured construct has been shown to also predict intergroup phenomena such as support for war (e.g., Cohrs, Moschner, Maes, & Kielmann, 2005). How is authoritarianism linked to intergroup relations?

First, enhanced group functioning fostered by authoritarian processes may be detrimental to outgroups as a side effect. For instance, in intergroup conflicts, groups in which high commitment, loyalty, and enhanced effort of group members are instilled by authoritarian processes may outcompete or defeat less organized groups. Also, in intergroup dilemmas in which cooperation would imply the highest outcomes for all participants (e.g., Assurance Game), authoritarian processes seem to foster intergroup conflict to ensure potential ingroup

gains and prevent potential ingroup losses unless negotiations lead to an explicit agreement between both groups (Bornstein, 2003; Cohen, Montoya, & Insko, 2006; Halevy, Sagiv, Roccas, & Bornstein, 2006).

Second, outgroups are sometimes perceived as a threat to the ingroup in undermining the way of living of the ingroup or competing for scarce resources (e.g., Esses, Jackson, Dovidio, & Hodson, 2005; Stephan & Renfro, 2002). Such threats increase authoritarian tendencies such as higher conformism, ingroup loyalty, and stronger punishment of ingroup deviants (e.g., Altemeyer, 1988; Sales, 1973; Van Vugt & Hart, 2004), thereby enhancing group-level cooperation and group performance. This may, in turn, increase intergroup competition and conflict, feeding into an escalating system.

Third, authoritarian processes may sometimes be directed toward outgroups because these are perceived to violate ingroup norms, as described by the concept of ethnocentrism (Campbell, 1965). This possibility results from an ambiguity in the notion of “norm violation,” which may refer to either an actor’s behavior or a victim’s damage. In an intragroup context, this distinction makes only a minor difference. However, if actor and victim belong to different groups, there is a difference in norm-violating behavior of an ingroup actor against an outgroup victim and a norm violation of an outgroup actor against an ingroup victim. In line with this reasoning, Bernhard, Fischbacher, and Fehr (2006) showed that individuals tend to punish norm-violating behavior toward ingroup members more harshly than identical behavior toward outgroup members (regardless of whether the perpetrator belongs to an ingroup or outgroup). Thus, the damage done, not the action itself, seems to be crucial. This is also supported by a series of studies demonstrating that negativity of intention and the amount of damage done primarily determine tendencies toward punishment (Carlsmith et al., 2002).

Interindividual Differences in Authoritarianism

So far, we considered authoritarianism as a set of general psychological processes and showed how these processes may have evolved. However, it is well known that there are stable and consistent interindividual differences in au-

thoritarianism. How can this seeming inconsistency be resolved? According to standard evolutionary approaches, one indicator of an adaptation is a reduction in heritable variance: If a certain feature is highly important for survival and reproduction, deviations from the optimum will be selected against (Tooby & Cosmides, 1990). Yet, if there is a genetic basis of the feature (which is certainly the case for authoritarianism; e.g., McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999) and the feature is influenced by a large number of genes, there will necessarily be interindividual variation as a result of mutation (Nettle, 2006). In addition, there may be frequency-dependent selection, which implies a particular mixture of two or more strategies rather than one pure strategy that is adaptive in a population (e.g., Maynard Smith, 1974). Hence, various behavioral options may appear in a particular mixture or in a variety of mixtures in individuals (e.g., Hawley, 2006). These options would typically be reflected in a certain amount of heritable variation.

First, interindividual differences in the level of conformity may have their basis in various mixtures of individual and social learning. Social learning will be more useful than instinctual behavior if environmental changes are faster than natural selection can keep track of, and it will be superior to individual learning if the environment changes slowly and past-generation behavior is still advantageous. Individual and social learning as a mixed strategy will spread in a population if social learning enhances the efficiency of individual learning by reducing learning errors and providing superior initial hypotheses (Boyd & Richerson, 1995). If the environment changes quickly, individual learning will be advantaged because it does not lead to the imitation of behaviors that are no longer adaptive. If the environment changes slowly, social learning will be advantageous because it saves time, leads to less errors, and improves individual learning. One may speculate that in the past, the environment changed at varying rates, implying no equilibrium mixture for individual and social learning to which natural selection can have optimized learning mechanisms. This variation leads to differences among individuals in the amount to which they engage in individual or social learning.

We suggest that these individual differences correspond broadly to the dimension of a relative preference for social conformity versus personal autonomy, theorized by Feldman (2003) as the core dimension of authoritarianism (see also Kruglanski, Pierro, Mannetti, & De Grada, 2006, for a similar suggestion concerning the need for closure). This hypothesis could be tested by examining the relationship between authoritarianism and learning styles, building on research linking authoritarianism to cognitive rigidity (e.g., Christie, 1993). Related to this, authoritarianism correlates negatively with openness to experience (e.g., Butler, 2000). Because aspects of openness to experience such as a divergent cognitive style have been argued to be adaptive (Nettle, 2006), there may be additional forces working for the selection of non-authoritarianism, in particular, in fast-changing environments.

Second, the punishment of norm deviants provides a second-order public good on which individuals may free-ride by norm compliance without punishing norm violations. In populations in which the punishment of norm deviations is common, the tendency for punishment is less individually costly because the cost of punishment is distributed among many group members, and norm deviations will occur less frequently. However, this makes norm deviations (e.g., noncooperation) more beneficial, leading to an increase of nonpunishing free-riders in the population. Thus, the relative proportion of punishment and free-riding tendencies oscillates (Sigmund & Nowak, 2001), and interindividual differences occur. We suggest that these differences are reflected in the well-known differences in authoritarian aggression (e.g., Altemeyer, 1981; Funke, 2005). This hypothesis could be tested by examining the relationship between authoritarianism and free-riding tendencies as well as responses to free riding in cooperation dilemmas.

Conclusion

In this article, we suggested how authoritarianism, encompassing conventionalism, authoritarian submission, and authoritarian aggression, may have evolved. First, the tendency to learn what the majority does is a useful way to acquire knowledge in slowly changing environments, leading to a tendency to conform to local

conventions. Second, local conventions and in-group norms solve coordination problems and facilitate cooperation in larger communities. Individuals tend to submit to these norms and the authorities embodying them. Finally, punishing norm deviation enhances norm compliance and ensures high levels of commitment and cooperation. Together, these authoritarian processes enhance group functioning and efficacy. However, this enhanced group functioning may also imply a high risk of fostering intergroup competition and conflict.

A potential qualification of our approach is that higher levels of authoritarianism are typically associated with particular (right-wing) political contents (e.g., Altemeyer, 1981; Jost, Glaser, Kruglanski, & Sulloway, 2003; but see Greenberg & Jonas, 2003), but we have neglected the content of group norms. In general, we suggest that the proposed processes will work in every well-functioning group regardless of particular group norms (see Stellmacher and Petzel [2005], who developed a "content-free" authoritarianism scale). However, individual differences in the reliance on individual versus social learning may explain the differences in the susceptibility for certain ideologies. For instance, if a conservative ideology is clearer than left-wing ideologies, more conventional individuals will tend to accept conservative ideologies.

Finally, what conclusions can be drawn regarding possibilities to reduce the detrimental effects of authoritarianism? Once the functions of authoritarianism are identified, as a general strategy, we suggest establishing substitute mechanisms that fulfill these functions without producing negative side effects to such a large extent as authoritarianism does. One example is the replacement of informal ways to deal with norm violators (e.g., lynching) by formal institutions (i.e., courts and legal procedures). Without formal institutions, group members have to enforce commitment to group norms and develop a reputation by authoritarian aggression more strongly, particularly if they could lose much (e.g., herders can lose more than farmers because one can steal a herd but not land). Accordingly, Nisbett and Cohen (1996) showed that in the American South (traditionally inhabited by herders and their descendants), a culture of honor was developed in which even minor insults produced harsh punishment. Applied to

present-day societies, it may be argued that the functionality of the legal system and trust in the associated institutions need to be maintained and fostered in order to reduce individual authoritarian tendencies.

Another strategy may be to accept authoritarians' concern for high group functionality, but emphasize that authoritarianism is not always the best way to achieve this goal. For example, the groupthink phenomenon (Janis, 1972) illustrates that nonauthoritarian behavior is sometimes more beneficial for groups, and Putnam (2007) has shown that cultural diversity (which is a cause of concern for authoritarians and seems to have negative short-term effects) can make societies more stable and successful in the long run. The functionality of low levels of authoritarianism may become especially relevant in our quickly changing times. We believe that the approach suggested in this article can be functional in aiding the search for possibilities to control the ugly faces of authoritarianism.

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